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**DEVELOPING EFFECTIVE PACKAGES OF
ENVIRONMENTAL POLICY INSTRUMENTS IN
EASTERN EUROPE, CAUCASUS AND CENTRAL ASIA
(EECCA) : EXPERIENCE AND DIRECTIONS FOR
REFORM**

submitted by

the Task Force for the Implementation of the Environmental Action
Programme for Central and Eastern Europe (EAP Task Force)/
Organisation for Economic Cooperation and Development

through the Ad Hoc Working Group of Senior Officials

BACKGROUND DOCUMENT



UNITED NATIONS
ECONOMIC COMMISSION FOR EUROPE

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ACRONYMS

BAT	Best Available Technique
BREF	BAT reference document
CFD	Compensation for Damages
EECCA	Eastern Europe, Caucasus and Central Asia
EIA	Environmental Impact Assessment
ELV	Emission (Effluent) Limit Value
EME	Environmental Management in Enterprises
EMS	Environmental Management System
EQO	Environmental Quality Objective
EQS	Environmental Quality Standard
EU	European Union
IPPC	Integrated Pollution Prevention and Control
MAC	Maximum Allowable Concentration
MAD	Maximum Allowable Discharge
NEAP	National Environmental Action Plan (Program)
NGO	Non-governmental Organization
NIS	New Independent States
OECD	Organisation for Economic Cooperation and Development
PCA	Partnership and Co-operation Agreements
PRD	Performance Rating and Disclosure
PRTR	Pollution Release and Transfer Registry
RIA	Regulatory Impact Analysis
UNECE	United Nations Economic Commission for Europe
USAID	United States Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

1. Over the last ten years, important steps have been undertaken in the NIS to reform environmental policies, laws, and institutions. As part of this policy and regulatory reform, framework laws on environment, media-specific and some other relevant laws were developed or updated in most countries of the region, establishing the overall principles of environmental protection. However, the regulatory reform is far from being complete. The ambitious lawmaking process has been largely unsystematic and resulted in many gaps and contradictions between new laws, decrees, and regulations. The development of implementing regulations (secondary legislation) has been slower and even more inconsistent than the adoption of framework acts. Many Soviet regulatory documents are still in force. As a consequence, it is not always clear which regulations apply in a specific case. Many important sections of the legal framework still need to be redefined and brought into accordance with national legislation in other fields of activities. The NIS possess and operate a fairly wide range of environmental policy instruments, but nearly all of them are ineffective, leading to no significant improvement of environmental conditions. *These problems necessitate a focus of environmental policy and regulatory reform in the NIS on policy implementation in general and the development of coherent implementing regulations in particular.*

2. The purpose of this report is to outline the principal approaches and directions for comprehensive and coherent reforms of environmental policy instruments in the NIS, based on the analysis of the existing policy implementation framework. The report promotes the use of the policy packages (mixes) that would allow NIS environmental authorities to coordinate reforms of the existing instruments and add new ones in order to ultimately develop environmentally effective, administratively efficient, targeted programs to pursue clearly established policy goals and address priority problems.

3. The policy instruments and their recommended reforms are considered in the report in two major blocks of interrelated instruments, based on their role in an environmental management program:

- instruments that establish regulatory requirements for polluters: standards and permits; and
- instruments that are used to either compel or stimulate polluters to comply with environmental requirements: monitoring and reporting, strategic enforcement, economic instruments, environmental liability rules, and compliance promotion.

4. The report also seeks to identify some benchmarks for the environmental policy instruments reform process. It argues that environmental Directives of the European Union provide such important benchmarks, attractive to the NIS for a range of political and economic reasons. While some EU requirements are too sophisticated for the level of institutional development in environmental management that currently exists in the NIS, many others can become short and medium-term milestones for reforms of environmental policy instruments.

Packages of Environmental Policy Instruments

5. Given the unsystematic and often contradictory nature of NIS environmental policy reforms to date, there is an urgent need to strengthen the linkages between reforms of individual environmental policy instruments (and introduction of new ones) and to create integrated environmental management programs. In OECD countries, the emphasis is increasingly placed on developing “*policy packages*” – *coherent*

mixes of policy tools that exploit synergies for achieving environmental policy objectives in a cost-effective manner and avoid policy conflicts. Policy packages are designed to solve specific priority environmental problems (e.g., water pollution from direct industrial discharges, air pollution from transport) in a certain time frame and involve different combinations of environmental policy instruments, including regulatory instruments, economic instruments, voluntary approaches, information and education, and other policies.

6. Overhauling the existing inflexible system of regulatory policy instruments and bringing internal integrity to it may require reforming several “blocks” of instruments that affect several priority problems at the same time. For example, addressing any water pollution problem would lead to changing the way how water quality standards are set, how discharge limit values for polluters are calculated and permits issued, and how compliance is monitored and enforced. Therefore, at the first stage, the packaging approach manifests itself in an *integrated reform of all fundamental regulatory policy instruments (standards, permitting, monitoring, and enforcement) while preserving and strengthening the linkages between them.*

7. Reforming one instrument will create a basis for increased effectiveness of others, including non-regulatory instruments (economic, information-based, etc.). A reform of environmental quality standards will make permits more realistic and monitoring more efficient. Improved permitting will create conditions for enhanced self-monitoring and reporting, dramatically strengthen enforcement, and increase the incentive impact of pollution charges. Better monitoring and reporting will bolster the effectiveness of enforcement and economic instruments, as well as give an impetus to the design of information-based instruments, which in turn will contribute to compliance promotion. Enforcement and compliance promotion are mutually reinforcing instruments, while the liability system will benefit from improved monitoring and enforcement.

8. As the integrated reform process advances, more and more attention will need to be paid to targeting non-regulatory instruments at very specific priority environmental problems, much in the way it is done in the OECD countries. For example, a bulky and ineffective system of all-encompassing pollution charges would be replaced by a much leaner scheme focusing charges on those key pollutants and those industries that are most likely to respond by reducing their discharges. The use of modern information-based and voluntary programs, packaged with regulatory and economic tools, would also have to support concrete policy objectives.

9. In order for the regulatory reforms to be successful, an adequate policy and institutional framework should be put in place, including dramatically improved environmental planning, strengthened capacity of environmental institutions, and an effective mechanism for interagency cooperation in setting and achieving environmental and sustainable development goals.

Setting Environmental Requirements: Environmental Standards and Permitting

Establishing Environmental Quality Standards and Discharge Limits

10. The NIS system of environmental quality (ambient) standards has remained largely unchanged since its establishment in the Soviet Union. It is comprehensive and ambitious, covering hundreds of pollutants and mandating very low concentrations of contaminants. Environmental quality standards are determined exclusively on the basis of zero human exposure, without consideration of the technical or economic feasibility of compliance with them. Ambient standards also exceed the environmental agencies’ capacity to monitor the regulated substances. Major obstacles to reforming the system of standards are (1) the opposition, particularly from the health authorities, to the perceived “weakening” of pollution control requirements; and (2) the acceptability of the status quo to industry, which uses the technical and economic unfeasibility of the standards as an excuse not to comply but demand concessions from the government.

11. Discharge (emission or effluent) limits for individual polluters are set in permits based on dispersion models so as to ensure compliance with ambient standards. The excessive stringency of discharge limits imposes technically impossible requirements and disproportionate economic costs. The system of temporary discharge limits (negotiable between the enterprise and regional environmental authorities on a case by case basis) has not served its purpose, either. In many cases, the temporary (but routinely renewed) limits have been set at values close to actual pollution levels, yielding no incentive for pollution reduction.

12. The system of overly stringent environmental standards and discharge limits in the NIS has clearly failed to provide the environmental quality it aspires: pollution in many “hot spots” continues to exceed standards several times over. In fact, it has produced the opposite effect to the one intended by the regulators by inducing noncompliance and perpetuating disrespect for the law.

13. The revision of environmental standards will require not only a change in numerical values but a broad-based reform encompassing the principles and the legal basis of standard setting. The key is a combination of statutory instruments and non-statutory management decisions applied within a flexible framework:

- Promulgating various options in terms of environmental quality objectives (and associated with them numerical environmental quality standards) in medium-specific laws (Water Codes, air protection laws) that already exist in the NIS; and
- Giving to decision-makers (regional environmental agencies in consultation with regional administrations) the mandate to choose between these options in order to establish environmental quality objectives appropriate for specific environmental conditions and available resources.

14. The number of polluting substances regulated should be limited to those that can be effectively monitored with the limited technical capacity and human resources available. A regulatory requirement makes sense only if it is possible to demonstrate compliance or noncompliance with it.

15. It is increasingly recognized that an optimal definition of emission/effluent limit values (ELVs) must be based on a combined assessment of environmental quality objectives and the current state of technology for reducing harmful releases. Regulating the technique used for particular processes (through the application of Best Available Techniques, BAT) ensures that the process operates with a technical base that is known to be capable of delivering a particular level of environmental performance. Regulating the quality of the emission or effluent on the basis of environmental quality objectives ensures that the technique is operated in an environmentally responsible manner, respecting the needs of the local environment. These two approaches are complementary and both have a place in an overall framework for environmental management.

Creating a Comprehensive Hazardous Waste Regulatory Framework

16. The regulatory approach to managing industrial hazardous waste is conceptually different from management of air and water pollution. In regulating air emissions and wastewater discharges, the emphasis is placed on limiting the loading of pollution into the environment. In hazardous waste management, it is the *handling* of waste that is the focus of the regulation. The NIS are in very early stages of developing an appropriate regulatory framework for industrial waste management. An effective industrial hazardous waste management system should be put in place on the basis of strict command-and-control regulatory mechanisms (technique-based standards, permits, monitoring and record keeping, and enforcement) concerning generation, storage, transport, treatment, and disposal of wastes. The cost of

appropriate handling of hazardous waste should be fully borne by its generator in order to serve as an incentive for waste minimization at the source.

Reform of the Permitting System

17. The cumbersome and ineffective permitting procedures in the NIS also compromise the attainment of environmental goals. The number of polluting substances regulated makes the scope of the permitting system too large compared to the limited resources of both industrial applicants and environmental permitting authorities. Permits are issued separately for each environmental medium (air emissions, wastewater discharges, and waste disposal on land), with different environmental authorities responsible for each permit. Coordination between these permitting authorities is very limited, which results in permits being oriented toward inflexible end-of-pipe solutions rather than pollution prevention.

18. The existing environmental permitting systems in the NIS need to be ***gradually*** improved. Several NIS have already expressed their desire to progressively move toward a single integrated permit system instead of currently separate permits for air emissions, wastewater discharges, and waste storage and disposal. The most feasible benchmark for this process is the EU's IPPC Directive that applies the Best Available Techniques (BAT) approach to large polluters in a range of industrial sectors.

19. While integrated permitting is a worthy long-term goal for the NIS, the transition will take many years. *In the short-term, the goal should be to improve permitting procedures.* Industrial enterprises should be able to apply for and obtain only one environmental permit. Consolidation of existing single-medium permits into one document can be achieved through increased transparency and coordination between permit-issuing authorities at different steps of the permitting process. Also in the near future, the NIS could take initial steps toward BAT-based integrated permitting, including the establishment of a list of industrial sectors and the minimum size (production capacity or output) of installations to be controlled under BAT.

Ensuring Compliance with the Requirements

Monitoring and Reporting

20. Two types of monitoring are necessary for verifying compliance with environmental requirements and inform policy makers and other stakeholders: (1) ambient monitoring in all media (air, water, and land) by the government to check compliance with environmental quality standards; and (2) mandatory self-monitoring by industry of its environmental impacts.

21. The existing NIS ***environmental quality monitoring systems*** suffer from the dispersion of monitoring functions, low quality of monitoring equipment and laboratories, and the lack of exchange and incompatibility of the data collected by different agencies.

22. The problems of improving monitoring support facilities and equipment cannot be solved in the short-term, as this requires significant financial investment. Therefore, it is necessary to prioritize monitoring programs by targeting those pollutants or industries that are most important from the immediate impact on human health and on ecosystems. Limiting the number of pollutants subject to control would help to increase the credibility of monitoring and control systems. A coherent and comprehensive national monitoring system should be developed, for which the harmonization of data systems and methodologies is a prerequisite. The data should also be systematized, integrated, and processed for management decisions.

23. Mandatory ***self-monitoring*** of environmental impacts promotes compliance by assuring that each polluter routinely has the information it needs to choose compliance. At present, self-monitoring and reporting is done only at large industrial facilities in the NIS. The first step in improving this situation is to

ensure that there are *clear legal requirements for self-monitoring*. Self-monitoring should be mandated in the law and be part of the conditions written into each facility's environmental permit. It should cover all the environmental parameters (polluting substances and types of waste) included in the permit. The permit should also define the frequency and method of self-monitoring for all relevant parameters. Self-monitoring requirements should be accompanied by enforced requirements for record keeping (including appropriate forms), making the records available for inspection, and periodic and emergency reporting to the competent authority.

Strategic Enforcement

24. Noncompliance with environmental requirements is arguably the most serious problem of environmental management in the NIS. The causes of this problem include unenforceable and unfeasible regulatory requirements, lack of political commitment to effective enforcement, lack of enforcement strategies, lack of support from the court system, declining institutional capacity of enforcement agencies, etc.

25. First and foremost, the purpose of enforcement should be to dissuade others from committing the same offense, whether major or minor. Affecting environmental behavior on a positive basis should be the principal objective of enforcement. Each environmental enforcement agency should develop a program or strategy that would be tailored to a particular regulated community and effectively combine activities to both enforce and promote compliance with regulatory requirements.

26. Enforcement agencies need to possess and utilize the entire hierarchy of enforcement tools, including informal responses, notices of violation, monetary penalties, suspension or cancellation of permits, attachment of property, and criminal punishment. The "appropriate" response should be timely and proportionate to the violation and take into consideration factors of aggravating or mitigating nature. Internal enforcement agency guidelines (enforcement-response policy) should define the criteria for selecting one enforcement response over another.

Reform of Economic Instruments

27. ***Pollution charges*** are the main and most comprehensive type of economic instrument used for environmental protection in the NIS. They are levied on a very large number of air and water pollutants, and on solid waste (except Georgia). The system is complex but not targeted at specific environmental problems and serves primarily for revenue-raising purposes. Its incentive impact on polluters' behavior have been close to zero mainly because of low charge rates, underreporting of discharges (aggravated by poor monitoring), and low collection rates.

28. A number of actions need to be undertaken to eliminate the most obvious flaws in the present pollution charge system and increase its incentive impact. The first step would be to significantly simplify the system by a *drastic reduction in the number of pollutants on which charges are levied* through:

- Elimination of pollution charges on waste;
- Exclusion of hazardous air and water pollutants from the charge system; and
- Elimination of charges for air pollution from mobile sources.

29. The determination of pollutants that would continue to be charged should be guided by an analysis of main environmental problems. In order to have an incentive impact, ***pollution charges must be targeted at a few key pollutants*** that are discharged mainly by a number of big stationary point sources. The process of reducing the charge base should be tied together with the increase of charge rates to a level that would provide significant incentives to reduce pollution.

30. An effort to *increase the collection rates* will also enhance the overall credibility of the pollution charge system. Without enforcement (mainly through creditors' remedies), pollution charges, as well as other economic instruments become meaningless.

31. There have been several attempts to introduce product charges in the NIS (e.g., in Armenia, Georgia, Moldova). A product charge on fuels has a clear revenue-raising advantage over the current system of pollution charges (as shown by the Moldovan experience). Product charges could be effective instruments to control mobile source air pollution (fuel charges and taxes) and non-point source water pollution (charges on pesticides and fertilizers), but in most cases just as part of a policy package with command-and-control instruments.

Environmental Liability

32. Although the concept of environmental liability has been included in all framework environmental laws in the NIS, environmental damage compensation suits have been used very seldom in recent years. One reason is that most existing in the NIS state-approved methodologies for environmental damage assessment (based on standardized costs or categories of risk) date back to the Soviet era, are speculative and inaccurate, and would result in very small amounts of monetary compensation. Therefore, it is necessary to develop new damage assessment regulations to implement damage assessment based on actual costs of a selected remedy.

33. Mandatory environmental insurance for hazardous industrial facilities has been introduced in Russia and proposed in several other NIS. However, only effective liability rules would create a real need for insurance coverage and encourage companies to take preventive measures against environmental accidents.

Compliance Promotion Instruments

34. Compliance promotion is an activity that encourages voluntary compliance and should be an indispensable part of an enforcement strategy. There is only a very limited number of compliance promotion activities in the NIS, which are undertaken with varying frequency and effectiveness. The NIS could benefit from the following main approaches to compliance promotion:

- Information assistance to the regulated community (meetings and seminars to discuss existing and forthcoming regulatory requirements and compliance problems and opportunities, information centers/clearinghouses, etc.);
- Information-based instruments (e.g., pollutant/polluter inventories, lists of worst polluters, performance rating and disclosure programs, and eco-labeling);
- Promotion of cleaner production and environmental management in enterprises through environmental audits, ISO 14001 certification, and other means; and
- Financial assistance for compliance (to avoid abuse, public support should be provided only when and where it is needed, mostly for priority environmental investments).

Benchmarks for Reforms

35. Benchmarks are needed to plan the reforms of the basic environmental policy instruments in the NIS. Several economic, political, and other factors make the EU environmental legislation an attractive benchmark for the countries of the region, particularly those who will share a border with the enlarged Union.

36. The full approximation with the environmental *acquis* is neither appropriate (due to the lack of financial resources, institutional capacity) nor needed in the NIS. This is why partial and gradual **convergence** is the concept that most adequately reflects the approach to use EU norms as benchmarks in reforms of environmental policy instruments. Specific pieces of the EU environmental *acquis* contain useful concepts, standards, or processes that can be effectively applied already in the near future to reform fundamental regulatory policy instruments in the NIS (standards, permitting, monitoring, and enforcement):

- The *EU framework Directives* in the areas of air protection, water protection and waste management (and their “daughter” Directives) offer valuable concepts and benchmarks, particularly with respect to air and water quality objectives and standards and performance standards for waste management, as well as procedures for their implementation. In addition, they provide useful guidance on monitoring and sampling procedures.
- Although integrated permitting according to the *Integrated Pollution Prevention and Control (IPPC) Directive* is a long-term target for the NIS, there are reforms (primarily procedural improvements) based on the IPPC principles that could significantly streamline the NIS permitting systems already in the near future.
- The NIS may also consider convergence with the so-called *Seveso Directive* that regulates the prevention and control of major industrial accidents. The Seveso Directive applies to large installations using dangerous substances and is complementary to the implementation of the IPPC Directive.
- The *EU Recommendation on Environmental Inspection* provides a useful benchmark for improving the enforcement system in the NIS.

37. The NIS are likely to face formidable challenges – institutional, legal, and financial – in their efforts of convergence with key elements of the EU environmental legislation. Institutional capacity building in the NIS is likely to be a demanding task and require increased budgets, elaborate operational procedures and guidelines, and intensive training. The legal issues of EU convergence in the NIS are related mostly to inconsistencies within the existing legislation, which have to be resolved before EU elements are incorporated into it. Due to the severe financial constraints, the focus of convergence for the NIS in the short term should be on the elements of EU legislation that contain fundamental regulatory provisions and not those that deal with technical requirements for environmental infrastructure. The significant administrative costs of even partial convergence could be reduced through a carefully designed convergence strategy that would allow effective use and leveraging of technical assistance resources and experiences of other countries.

1. INTRODUCTION

1.1 Background

38. Since their independence in 1991, the New Independent States (NIS)¹ have had to create a whole new legal framework. Market reforms, democratization, and pressure from the international community have made NIS governments put considerable efforts into reforming or enacting new environmental laws and regulations in the main sectors of environmental protection. In this most noticeable achievement of environmental regulatory reform, framework laws on environment, media-specific and some other relevant laws were developed or updated in most countries of the region. They establish the overall principles and framework for environmental protection activities. The NIS have also ratified several important multilateral environmental agreements.

39. However, the regulatory reform is far from being complete. The ambitious (and often overwhelming for NIS executive institutions) lawmaking process has been largely unsystematic (due to the lack of specific goals, legal expertise, and institutional coordination) and resulted in many gaps and contradictions between new laws, decrees, and regulations. Many Soviet regulatory documents are still in force. Many important sections of the legal framework still need to be redefined and brought into accordance with national legislation in other fields of activities.

40. While there are considerable national differences among the twelve NIS with respect to the achievements of the regulatory reform, the obstacles to reform have been largely similar.

41. Main legal acts rarely define procedures for their implementation, and do not have direct effect. The regulatory system in the NIS relies extensively on a large body of subordinate (“secondary”) legislation—decrees, resolutions, regulations, administrative orders, decisions, etc. For example, the implementation of the Water Law of Georgia required the promulgation of 37 regulations (the vast majority of which are not in place)². The development of such implementing regulations has been slower and even more inconsistent than the adoption of framework acts. Numerous instructions, resolutions and directives issued by ministries and committees as well as decisions of local governments specify framework law provisions and are supposed to serve as guidance for regional and local environmental managers. This bulky and bureaucratic system has left legal voids, overlaps and unclear division of responsibilities between national and sub-national levels of environmental authorities, as well as with other sectoral agencies.

42. The effectiveness of the legal system has also been undermined by the difficulty for the regulated community to understand the complex and contradictory requirements. In many cases, implementing

¹ The NIS are increasingly referred to as the countries of Eastern Europe, Caucasus and Central Asia (EECCA).

² *Environmental Regulatory Reform in the NIS: The Case of the Water Sector*, EAP Task Force Secretariat, CCNM/ENV/EAP(2000)86, OECD, Paris, 2000.

regulations are not published and disseminated adequately, leading to the lack of awareness about the requirements among the regulated.

43. Another major failure of reform has been the insufficient consideration by the lawmakers of the issue of economic implications of regulation. As a legacy of a centrally planned economy, the NIS do not have a requirement to analyze expected costs and benefits of regulatory proposals and their feasible alternatives. The lack of even basic qualitative assessment has resulted in the proliferation of regulations during the reform period without consideration of the compliance burden on enterprises and of the enforcement capacity of environmental agencies.

44. The current environmental laws and regulations in the NIS provide for a fairly wide range of environmental policy instruments, but nearly all of them are ineffective, leading to no significant improvement of environmental conditions.

45. The focus of environmental policy and regulatory reform in the NIS should shift from policy development to result-oriented implementation in general and the development of coherent implementing regulations in particular. Many of them are still missing, especially those that stipulate operational procedures, others need to be amended to eliminate discrepancies with other laws and improve the effectiveness of policy instruments they provide for.

1.2 Purpose and Scope

46. The purpose of this report is to outline the principal approaches and directions for comprehensive and coherent reforms of environmental policy instruments in the NIS, based on the analysis of the existing policy implementation framework.

47. The report addresses the entire range of environmental policy instruments: regulatory, economic, information-based, as well as liability rules and voluntary approaches. It promotes the use of the policy packaging approach that would allow NIS environmental authorities to coordinate reforms of the existing instruments and add new ones in order to ultimately develop environmentally effective, administratively efficient, targeted programs to pursue clearly established policy goals and address priority problems. The policy packaging concept and its function in the context of NIS environmental policy reforms are discussed in Chapter 2.

48. The policy instruments and their recommended reforms are considered in the report in two major blocks of interrelated instruments, based on their role in an environmental management program. Chapter 3 deals with standards (with a particular emphasis on environmental quality standards for air and water, and technique-based performance standards for waste management) and permits – instruments that establish regulatory requirements for polluters. The rules of the game have to be established correctly from the environmental, technological, and economic points of view before enterprises can be reasonably expected to comply. Integrated permitting, a regulatory regime that allows adequate consideration of these factors, should be an ultimate goal for NIS reforms in this area, and Chapter 3 discusses the elements of this regime and steps for a transition to it.

49. Chapter 4 discusses the second block of instruments that are used to either compel or stimulate polluters to comply with environmental requirements. Monitoring and reporting provide the information basis for enforcement, compliance promotion, and economic instruments. Enforcement is indispensable in implementing the rules, but it works better when it is supplemented by compliance assistance, market-based incentives, and public pressure, which, in turn, cannot function without enforcement. Chapter 4 outlines the principles of reforming and using these instruments effectively, capitalizing on linkages between them.

50. While Chapters 3 and 4 address the issue of directions of reform, Chapter 5 seeks to identify some benchmarks for the reform process. It argues that environmental Directives of the European Union provide such important benchmarks, attractive to the NIS for a range of political and economic reasons. While some EU requirements are too sophisticated for the level of institutional development in environmental management that currently exists in the NIS, many others can become short and medium-term milestones for reforms of environmental policy instruments.

51. This draft report has been prepared by the EAP Task Force Secretariat as part of its work program that focuses, among others, on assisting the NIS in developing more effective and realistic environmental policies and institutions, and designing appropriate packages of policy instruments to implement those policies.

2. PACKAGES OF ENVIRONMENTAL POLICY INSTRUMENTS: THEORY AND PRACTICE

52. This chapter explains the policy packaging approach to the design of integrated environmental management programs and its suggested application as a guiding principle for reform of environmental policy instruments in the NIS. In addition, Section 2.4 discusses general environmental policy and institutional framework conditions that are essential for successful implementation of policy packages.

2.1 Need for an Integrated Approach to Environmental Policy Implementation in the NIS

53. Since 1991, the environmental policy and institutional framework in the NIS have been undergoing significant changes due to the creation of new national institutions, changing economic policies, political decentralization (in many countries), as well as increased attention of the national governments to environmental issues. National Environmental Action Programs (NEAPs) and/or other environmental policy documents have been developed in most NIS. They included broad statements of environmental objectives for the country or region and key principles of environmental policies. These programs were often valuable in identifying priority environmental problems. They also contained specific lists of actions and investments to address emergency environmental issues in the near term.

54. However, the new policy and legal framework, in many cases, followed the old patterns of planning with ambitious, often unrealistic goals, lack of effective policy instruments, implementation methods, financial resources, and actions to promote compliance. The design of regulatory (command-and-control) and economic instruments applied in the NIS took account of neither their environmental effectiveness nor administrative and compliance costs. Where economic instruments have been applied, they usually sought to raise revenue or even created a perverse incentive to pollute or increase the use natural resources. Other instruments, such as education and information management, have been use sporadically and separately from the regulatory framework.

55. At the same time, environmental agencies at all administrative levels have been ill equipped in terms of human, technical, and financial resources to effectively manage their environmental responsibilities, even despite the existing foreign technical assistance. The unclear division of roles and responsibilities between the national, sub-national (oblast), and local levels, and between environmental and sectoral agencies as well as lack of coherent management procedures contributed to the problem. The regulated community, local policy-makers, NGOs, and other stakeholders were often left out of the planning process, which undermined its effectiveness and resulted in slower implementation.

56. One of the major environmental challenges facing the NIS is to develop and put in place policies that would:

Establish better priorities and focus on environmental efforts that are financially feasible;

- a) Capture opportunities for simultaneously increasing environmental effectiveness and economic efficiency;
- b) Create an incentive framework for compliance with environmental requirements; and
- c) Help the countries meet their international commitments.

57. Given the unsystematic and often contradictory nature of NIS environmental policy reforms to date, there is an urgent need to strengthen the linkages between reforms of individual environmental policy instruments (and introduction of new ones) and to create *integrated environmental management programs*.

2.2 Definition of Policy Packages

58. In OECD countries, there is an increased interest in developing “policy packages” – coherent mixes of policy tools that exploit synergies for achieving environmental policy objectives in a cost-effective manner and avoid policy conflicts. Policy packages are designed to solve specific priority environmental problems (e.g., water pollution from direct industrial discharges, air pollution from transport) in a certain time frame and involve different combinations of environmental policy instruments, including regulatory instruments, economic instruments, voluntary approaches, information and education, and other policies. OECD countries are increasingly trying to work out effective mixes of these instruments³:

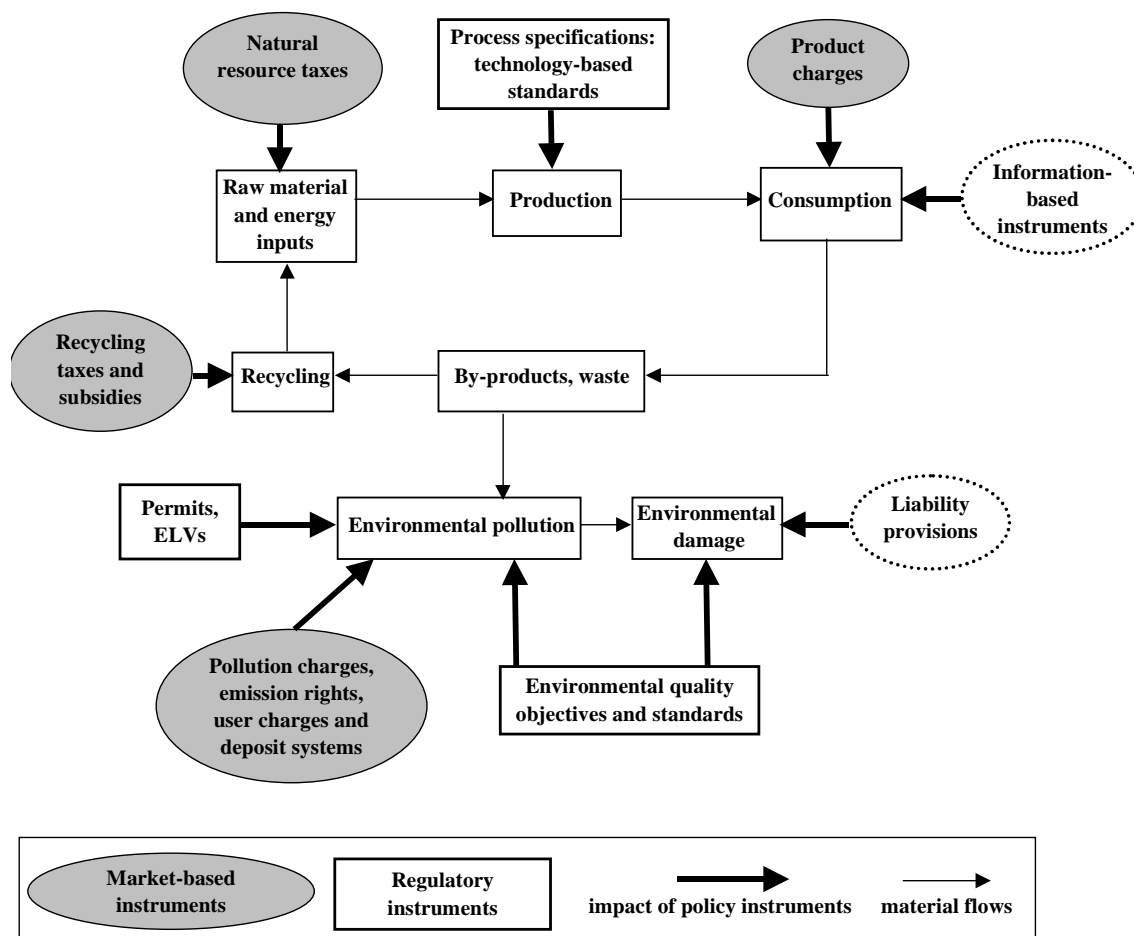
- *Regulatory (command-and-control) instruments*, including standards (ambient, discharge, and technological); licenses or permits (a tool to manage the attainment of the standard); monitoring (ambient environmental quality monitoring, self-monitoring of pollution discharges by industrial facilities, and outside inspections by a relevant authority); and sanctions (penalties that result from violations of standards and permit conditions). Complementing a command-and-control program for *existing* pollution sources should be an environmental impact assessment (EIA) program for *new* sources.
- *Economic instruments* (market-based incentives) can be defined as policy tools that create price signals to encourage polluters and consumers to make decisions that help achieve environmental objectives. Economic instruments increase the cost of behavior that harms the environment, and reduce the cost (or increase the value) of behavior that protects the environment. They can include both payments (e.g., pollution taxes/charges, product charges, natural resource taxes, tradable permits, and deposit-refund systems) for the use of the environment as well as government subsidies (grants, soft loans, tax breaks, etc.) that defray the costs of pollution control and prevention measures (on the other hand, subsidies promoting environmentally damaging activities need to be removed).
- *Liability rules* serve both as a mechanism for the fulfillment of the polluter’s responsibilities for cleaning up and/or compensating the environmental damage resulting from accidental pollutant releases, and as an incentive for polluters to take preventive measures even beyond existing regulatory requirements.
- *Voluntary approaches* (unilateral commitments, voluntary certifications, and negotiated agreements) are increasingly practiced in industrialized countries but are not common in the NIS due to the deeply rooted distrust between environmental regulators and industry. They can succeed in a well-developed regulatory framework if they are carefully designed and implemented with clear objectives, and with time-specific targets for achieving them. For example, industrial enterprises may be encouraged to implement internal ISO 14001-type environmental management systems in exchange for some regulatory forbearance in terms of timeframes for achieving more stringent standards, inspection frequency, and/or sanctions.
- *Information-based instruments* (information dissemination, pollutant/polluter inventories, eco-labeling, education and training, etc.) are also critical tools. Data must be collected and retrieved efficiently to support design and monitor implementation of environmental programs. The information management system should be used to perform the necessary regulatory functions (permit tracking, ambient and compliance monitoring, reporting of violations, etc.) and to involve relevant stakeholders and the

³ *OECD Environmental Outlook*. OECD, Paris, 2001

general public in the program through open information access and education to promote awareness and put pressure on polluters to comply with environmental requirements.

- *Land use planning* is a way to restrict or prevent potentially polluting development projects in environmentally sensitive areas and/or consolidate industrial facilities in certain areas (industrial parks or zones) where special environmental infrastructure is provided to mitigate their impacts. The use of this instrument is closely related to the EIA.

Figure 1. Policy instruments addressing the production and consumption cycle



59. Figure 1 provides an illustration of the application of different environmental policy instruments to a production and consumption cycle. It shows that various regulatory, economic, and other instruments within one package may and should be directed at different stages of the cycle. The composition of the package also very much depends on the precise nature of the environmental problem. For example, economic instruments are both efficient (i.e., least-cost) and effective (i.e., achieve the environmental objective) if applied to pollutants emitted by stationary sources that are easy to identify and monitor, or to resources and products that are widely used. At the same time, economic instruments involve a margin of uncertainty about site-specific environmental impacts. This is why direct regulatory instruments should dominate in policy packages dealing with local environmental impacts that are potentially severe and irreversible, i.e., those involving toxic substances. Information-based schemes are usually a good supplement to economic instruments in sending market signals to polluters, while voluntary approaches complement enforcement, particularly in moving beyond the existing regulatory requirements. The key is

to find the right mix of environmental policy instruments and not to superimpose instruments that send conflicting signals (like natural resource taxes and subsidies for companies exploiting them).

60. According to the OECD approach, a policy package targets a specific problem, and the government, *through a flexible legal framework*, picks the relevant instruments that would constitute a package. In this way, there may be a package to control sulfur dioxide or greenhouse gas emissions, a package for managing hazardous industrial substances, a package for non-point source water pollution, etc. (see example below).

Policy Package for Air Pollution from the Energy and Transport Sectors

The policy package to control air pollution from energy sources should include a combination of economic instruments (subsidy and tax reform, introduction of new taxes or charges, and wider use of tradable permit systems), a strong regulatory framework (particularly for setting air quality targets or standards), and the use of information-based policy tools to encourage more sustainable energy consumption and production patterns. Targeted measures to stimulate the development and implementation of cleaner energy technologies may also be appropriate.

Economic Instruments. Currently, the vast majority of environmentally related tax revenues in OECD countries are linked to vehicles and vehicle fuels, while taxation of other fossil fuels (e.g., coal) and other energy consumption is very low. Taxes could be restructured to better reflect the energy content of fuels. They could also be complemented by tradable permits for carbon dioxide, sulfur dioxide, and nitrogen oxides. Subsidies that support the use of fossil fuels over other, less environmentally damaging energy sources should be reformed. A gradual removal of the restrictions on prices that electricity users pay would also contribute to limiting total energy demand.

Regulatory Instruments. Direct regulations (tightening emission, technology, and product performance standards) may be used to direct energy production toward a more environmentally friendly fuel mix and to increase energy conversion by requiring a greater share of renewables and the use of such high-efficiency applications as co-generation and low-emission motor vehicles. Setting increasingly stringent air quality targets is another useful instrument.

Voluntary Agreements. In combination with other policy measures, voluntary agreements can be useful to encourage industry to make improvements beyond the minimum requirements specified in regulations.

Information and Other Instruments. The government should promote environmental R&D and demonstration projects for the energy and transport sectors. Eco-labels and other information schemes would enable consumers to make informed choices regarding their energy or fuel use. Land use and transport planning are essential instruments for reducing negative environmental effects of transportation activities. Finally, understanding of the full environmental or health effects of various air pollutants, as well as the long-term impacts of climate change, should be improved.

Source: OECD Environmental Outlook. OECD, 2001

2.3 Using Policy Packaging to Reform Policy Instruments in the NIS

61. The specifics of the application of the policy packaging approach in the NIS are somewhat different from those in Western countries. In the NIS, there is a rigid, prescriptive legal framework that contains “universal” (but largely incoherent and ineffective) policy instruments that apply to all pollutants and problems irrespectively of their specifics and order of priority. Given the colossal task of revamping the existing system of regulatory policy instruments and bringing internal integrity to it, it may be necessary to reform several “blocks” of instruments that affect several priority problems at the same time. For example, addressing any water pollution problem would lead to changing the way how water quality standards are set, how discharge limit values for polluters are calculated and permits issued, and how

compliance is monitored and enforced. Therefore, *at the first stage, the packaging approach manifests itself in an integrated reform of all fundamental regulatory policy instruments (standards, permitting, monitoring, and enforcement) while preserving and strengthening the linkages between them.*

62. Indeed, appropriately reforming one instrument will create a basis for increased effectiveness of others, including non-regulatory instruments (economic, information-based, etc.). A reform of environmental quality standards will make permits more realistic and monitoring more efficient. Improved permitting will create conditions for enhanced self-monitoring and reporting, dramatically strengthen enforcement, and increase the incentive impact of pollution charges. Better monitoring and reporting will bolster the effectiveness of enforcement and economic instruments, as well as give an impetus to the design of information-based instruments, which in turn will contribute to compliance promotion. Enforcement and compliance promotion are mutually reinforcing instruments, while the liability system will benefit from improved monitoring and enforcement.

63. As the integrated reform process advances, more and more attention will need to be paid to targeting non-regulatory instruments at very specific priority environmental problems, much in the way it is done in the OECD countries. For example, a bulky and ineffective system of all-encompassing pollution charges would be replaced by a much leaner scheme focusing charges on those key pollutants and those industries that are most likely to respond by reducing their discharges (see Section 4.3.2). The use of modern information-based and voluntary programs, packaged with regulatory and economic tools, would also have to support concrete policy objectives.

2.4 Enabling Conditions for Reform

64. Each of the policy instrument reforms proposed in this paper would include the preparation of regulatory changes (some of this work has already been done by the NIS); promulgation of secondary legislation enacting the reform; and actual implementation of the reformed policy instrument. The quality of regulation is a function of how well it reflects environmental priorities, how understandable it is to the regulated community, how consistent it is with existing legislation, as well as with the institutional framework, how feasible its implementation and enforcement are, and whether sufficient enforcement authority is provided.

65. In order for the regulatory reforms to be successful, an adequate policy and institutional framework should be put in place, including dramatically improved environmental planning, strengthened capacity of environmental institutions, and an effective mechanism for interagency cooperation in setting and achieving environmental and sustainable development goals. The fact that these are *enabling conditions* for reforms of environmental policy instruments does not mean that the latter need to be postponed until satisfactory progress has been made in improving the policy and institutional framework. In the past decade, numerous environmental planning exercises and attempts at institutional reform have diverted attention and resources from deeper, more decisive steps to reconstruct the environmental management program and achieve concrete results.

66. After an appropriate policy or strategy has been prepared, the next step in implementing any regulatory reforms should be a clear policy statement at the highest level of government to communicate justification for reform and to build support for change among civil servants within relevant government agencies, industry, and the general public. Political support and direction are essential to overcome administrative resistance and the influence of powerful special interests.

67. In order to maintain political support for reform, environmental agencies should engage in a *continuous, broad consultation process* with all relevant governmental (at different administrative levels)

and non-governmental stakeholders (industry, academia, and NGOs) on all draft regulatory provisions. It is essential to inform and consult the stakeholders throughout the design and implementation process, while facilitating public access to environmental information and reporting regularly on the progress being made in the implementation. Consultations with industry representatives would be particularly important, because of the importance of securing the regulated community's commitment to supporting the future program.

68. Another important tool that environmental regulatory agencies should start using is **regulatory impact analysis (RIA)** – a method of systematically and consistently analyzing selected potential impacts of government action and of communicating the information to decision makers. The central principle of an RIA is the explicit comparison of costs and benefits of regulation. The development of a policy package should be accompanied by an analysis of financial viability of identified policy instruments, as well as their social impact. In developed countries, it has proved a useful appraisal tool of the quality of existing and new regulations, and has helped increase the transparency of the regulatory process and accountability of regulators.

69. Competition and conflict between government agencies because of overlapping responsibilities undermine the effectiveness of environmental programs. For example, environment ministries need to be in close cooperation with water management authorities on water issues, with health authorities on standards, with finance and tax ministries on environmental taxation, etc. Approaches to achieving coordination among agencies with environment-related responsibilities include:

- Development of **interagency agreements and memoranda** of understanding that establish clear mechanisms and procedures for handling areas of overlapping authority and/or of mutual interest. Such agreements or memoranda should be signed at the ministerial level. They should categorize all foreseeable types of decisions involving several agencies, and for each prescribe the decision-making responsibility and process. The most common interagency decision-making procedure is a formal review of one agency's policy or regulatory proposals by the other(s).
- Engagement in **ad hoc joint efforts** such as joint monitoring or inspections. Various ministries may also organize joint expert working groups or task forces to share information and support decision-making on a specific priority issue (EIA, standards, subsidies, etc.).
- Establishment of a permanent **interagency coordinating body** (committee, commission, etc.). This may be the least preferred option for the NIS due to the negative experience with this type of arrangement to-date and its high administrative costs. However, for issues of high political importance (e.g., transboundary issues or compliance with international agreements), a permanent steering committee or council may be established at the governmental level with representation of key stakeholders to keep the issue high on the political agenda needed for implementation.

70. The weakness of NIS environmental institutions is one of the main obstacles to progress. Significant efforts are needed to improve the effectiveness of newly created and existing bodies. The level of discretion given to environmental agencies at all administrative levels should be clearly defined in the regulations and procedures and directly correspond to the scope of responsibilities. The allocation of budgetary resources (and staff) should also be proportionate to activities required at the national, regional, and local level.

71. Environmental agencies will need to develop **detailed implementation plans** for proposed packages of reformed policy instruments, and then translate those plans into guidelines. One set of guidelines may be devoted exclusively to explaining to government regulators what they need to do, step-by-step, to administer the program. The guidelines may suggest specific management procedures and sample document formats. If applicable, another set of guidelines can be targeted specifically at the

regulated community (e.g., industry), explaining what they need to do to anticipate and comply with the requirements of the program.

72. **Training** is one of most important implementation tools. To enact new regulations and eliminate regulatory conflicts and legal discrepancies, environmental authorities will need substantial support in legal analysis and drafting. Capacity in the areas of financial analysis, general management and planning, and environmental information for decision-making support also need to be developed.

73. A training program would also be needed for the regulated community. Industrial managers would be educated in their responsibilities vis-à-vis the new requirements, as well as in how compliance can be achieved through win-win business solutions (pollution prevention, environmental management for enterprises, etc.).

3. SETTING THE REQUIREMENTS: ENVIRONMENTAL STANDARDS AND PERMITTING

74. This chapter discusses environmental quality standards and permitting, the foundation of a regulatory framework for environmental management. It focuses on regulating existing pollution sources and does not specifically discuss environmental impact assessment (EIA) which targets the entry of new sources. At the same time, reforms of the system of environmental quality standards and the way of determining permit requirements (considered in Sections 3.2 and 3.3) would affect the substantive background for the EIA decision-making process.

75. Because of the focus on environmental quality, only limits on *direct discharges* into the air and water are considered in this chapter, to the exclusion of pretreatment standards for effluents into public sewerage systems and construction standards for flue gas and wastewater treatment installations. Given a different nature of regulating industrial hazardous waste management (through technology-based performance standards), the regulatory framework for industrial waste is discussed in the separate Section. Finally, the cross-media, institutional aspects of permitting reform are addressed in Section 3.5.

3.1 Current NIS Approach to Environmental Standard Setting and Permitting

76. Despite the promulgation of volumes of new environmental laws, the basis of the legal and regulatory framework, the system of environmental standards, has remained unchanged since its establishment in the Soviet Union. In some NIS, efforts at reforming environmental quality standards have been initiated, and new concepts such as technology standards (Ukraine, Belarus), product standards (Georgia), ecological standards (Ukraine) and maximum adverse impact limits on water bodies (Russian Federation) have been introduced and are currently under development. However, in no country in the region has there been a comprehensive revision of the methodology for standard setting and the legal basis for standardization.

3.1.1 Environmental Quality Standards

77. The NIS system of environmental quality (ambient) standards is comprehensive and ambitious, covering hundreds of pollutants and mandating very low concentrations of contaminants compared with respective WHO guiding values (see Table 1) and EU requirements.

Table 1. Comparison of Selected Armenian Air Quality Standards with WHO Guiding Values and EU Standards

Substance	MAC Armenia (mg/m ³)		WHO Guiding Value (mg/m ³)/ Averaging Time	EU Standards (mg/m ³)/ Averaging Time
	20 min	24 h		
Carbon monoxide	5.0	3.0	60.0 (30 min) 10.0 (8 h)	--
Sulfur dioxide	0.50	0.05	0.50 (10 min) 0.125 (24 h)	0.08-0.12 (annual)
Nitrogen dioxide	0.085	0.04	0.2 (1 h)	0.2 (annual, 98 percentile)
Particulate matter	--	0.05	0.06-0.09 (annual)	0.08 (annual)
Lead	--	0.0003	0.0005 (annual)	0.0005 (annual)

Source: Adapted from *Environmental Performance Review of Armenia*, UNECE, Geneva, 2000.

78. Ambient standards (maximum allowable concentrations, MAC) usually set by the Ministry of Health are determined exclusively on the basis of zero impact on human health and ecosystems. In the water sector, under the 1958 USSR Council of Ministers Resolution No. 1045 still in force in many countries, almost all waters are designated for fishing use, a category subject to most stringent requirements (Table 2). In determining the standard, consideration is not given to the technical or economic feasibility of meeting the quality standard, i.e., risk management factors.

Table 2. Comparison of Selected Ambient Water Quality Standards for Protection and Support of Fish Life in Russia, Ukraine, Kazakhstan, and the EU

Parameter	Russia	Ukraine	Kazakhstan	EU (78/659/EEC for salmonid fish)
BOD5	3-6	2	3	3
Suspended solids, mg/l	Background + 0.75			25
Copper, mg/l Cu	0.005	0.001	0.001	0.04
Zinc, mg/l Zn	0.01	0.01	0.001	0.3

Source: Adapted from *Environmental Regulatory Reform in the NIS: The Case of the Water Sector*, EAP Task Force Secretariat, CCNM/ENV/EAP(2000)86, OECD, Paris, 2000.

79. Since any risk level is considered unacceptable, the maximum number of pollutants are regulated for the maximum number of people, without setting any priorities for risk management measures. Ambient standards also exceed the environmental agencies' capacity to monitor them. In fact, the mandated concentration limits for pollutants are so low that they cannot be detected by the available monitoring equipment. For example, in Ukraine, 29 water pollutants are routinely measured out of the over 1,200 regulated⁴.

80. A considerable disadvantage of the system of ambient standards in the NIS is the overly stringent and unrealistic requirement of 100% compliance rate. Enterprises must be in compliance with environmental standards at any point in time. In the EU and the U.S., standards are applied as annual averages rather than as an absolute requirement to be attained continuously. Compliance is determined on the basis of 95% (or 90%) of the monitoring samples being within the mandatory limit (the so-called 95 percentile system), while the remaining 5% should not exceed 150% of the mandated level. In addition, in the NIS there are no formal methodologies that would determine the frequency of sampling to ensure the accuracy (and legal validity) of sampling analysis results. At present, the regulatory authorities tend to regard one-time water samples as an adequate basis for enforcement against polluting enterprises and assessing pollution charges.

81. Sometimes standards for substances occurring naturally in the environment (e.g., chlorides, sulfates) are established below the levels of their seasonal variations. Environmental quality standards are also uniform for entire countries (as formerly for the entire Soviet Union) regardless of differences in geophysical, social, and economic conditions. Devoid of any inputs from the regulated community and the public, standard setting has remained a routine scientific exercise rather than a policy process. In most NIS, there are no provisions mandating periodic review of ambient standards⁵.

⁴ *Environmental Regulatory Reform in the NIS: The Case of the Water Sector*, EAP Task Force Secretariat, CCNM/ENV/EAP(2000)86, OECD, Paris, 2000.

⁵ Georgia's Law on Environmental Protection (1996) required the revision of environmental standards every 5 years, but so far such revision has not been undertaken.

82. The system of environmental quality standards is among the last legacies of the Soviet regulatory regime that have remained virtually intact. In several NIS, environmental and health officials have considered the reform of ambient standards. Environmental authorities in Ukraine have proposed less stringent air quality standards for a set of priority pollutants. However, such reforms have not yet been adopted. In some cases, there has been opposition to “weakening” of pollution control requirements, particularly from the health authorities.

83. The obstacles to reforming the system of standards are representative of those confronting the regulatory reform effort in general. The most serious obstacle is the acceptability of the status quo to all major stakeholders (regulators, industry, and even the public), while the negative environmental consequences are not clearly linked, in the eyes of the public, to the system of standards:

- The stringency of standards makes them ideologically appealing to *health and environmental agencies* as it reinforces their image of commitment to high environmental quality.
- Despite their low levels, pollution charges based on these standards provide *environmental authorities* with a revenue stream which they fear will decrease if the standards were relaxed and enforced.
- The technical and economic unfeasibility of the standards presents a valid excuse for *industry* not to comply but demand concessions from the government. A more realistic level of requirements, if supported by strengthened enforcement, would entail an obligation to comply with them, at some cost.
- The government makes the *people* believe that their and future generations’ health is better protected through a system of stringent environmental requirements, while not providing the public with comprehensible information about the actual environmental situation and performance by industry.

3.1.2 Discharge Limits

84. Discharge limits (maximum allowable discharges, MAD) for individual polluters are set in permits based on dispersion models *so as to ensure compliance with ambient standards*. The methodology for setting air emission limits dates back to the 1986 Soviet Hydromet instructions⁶. MADs are proposed by enterprises on the basis of a government research institute’s calculations and are approved by environmental agencies in coordination with health authorities for every pollutant discharged by the enterprise.

85. The excessive stringency of discharge limits imposes technically impossible requirements and disproportionate economic costs. For example, an existing regulation in Russia stipulates that within the limit of urban areas, pollution characteristics of a treated effluent may not exceed ambient standards for fishing-class water bodies. This implies that the ambient water quality should be lower than the quality of the discharge, requiring a level of treatment that goes far beyond the capabilities of presently available technology⁷.

86. Since overly stringent maximum allowable discharges are impossible to enforce, “temporary” (higher level) discharge limits are used in practice (even though they are not envisioned in the law in some countries, as in Ukraine) with a goal of step-by-step attainment of environmental quality standards. These limits are negotiable between the enterprise and regional environmental authorities on a case by case basis as part of the permitting process. Environmental agencies have wide discretionary powers and few guidelines for negotiating the temporary limits, which creates space for corruption. The system of

⁶ *Requirements for Environmental Compliance of Russian Industries*, Background Paper for the Tacis “Assistance to the Russian Steel Industrial Sector” project, Ecoline Consulting, 2001.

⁷ *Effectiveness of Water Protection Legislation in Russia and the CIS: Practical Analysis*, by Yu. F. El, EAP Task Force Secretariat working paper, Paris, 2002.

temporary limits has not served its purpose. In many cases, the temporary (but routinely renewed) limits have been set at values close to actual pollution levels, yielding no incentive for pollution reduction.

87. There have been several attempts in the NIS to introduce technology-based standards as a basis for setting discharge limits. Ukraine has reformed the regulation of wastewater utility effluents with Resolution No. 465 of the Cabinet of Ministers of 25.03.1999. The Resolution establishes new, technology-based effluent standards for wastewater utilities to substitute the previous ones based on ambient standards. The new standards impose the same requirements on all wastewater utilities regardless of the status of receiving waters. However, even though the standards were introduced in order to converge with the requirements of the EU Urban Wastewater Treatment Directive (91/271/EEC), they are still more stringent than the respective European standards⁸.

Parameter	1999 Ukrainian standard	EU standard (91/271/EEC)
Biochemical oxygen demand (BOD5), mg/l	15	25
Chemical oxygen demand (COD), mg/l	80	125
Total suspended solids (TSS), mg/l	15	35

88. In Russia, as well, the idea to develop technical standards for different industrial sectors was positively received in the Ministry of Natural Resources, especially by environmental enforcement officials. However, since 1995, only experimental standards for air emissions for boilers and bakeries have been developed, due to the shortage of funds for their elaboration.⁹

89. In summary, the system of overly stringent discharge limits in the NIS has clearly failed to provide the environmental quality it aspires: pollution in many “hot spots” continues to exceed ambient standards several times over. In fact, it has produced the opposite effect to the one intended by the regulators: the requirements are perceived as unjust and overly burdensome, inducing the regulated community to avoid complying with them. The attempts to fix the system by introducing temporary limits have also failed. Consequently, belief in the regulatory system has been greatly undermined and a regulatory culture of non-compliance is perpetuated.

3.1.3 Permitting

90. Environmental permitting of industrial enterprises in the NIS is a cumbersome undertaking that makes compliance difficult, places undue demands on enforcement agencies and industrial applicants, and does not allow public review of the permitting process. Enterprises must comply with a wide range of environmental statutes, requiring that a separate permit be obtained for air pollution, water use, wastewater discharge, soil contamination, waste generation and disposal, natural resource use, and even (in some countries) noise. Each of these statutes also has associated with it a series of other norms and regulations, and these must be considered when a permit is granted. It takes several months (in extreme cases, years) and substantial financial resources (paying for information, ELV calculation, etc.) to obtain a permit. For example, the Kuznetsk Metallurgical Works in Russia has to obtain 78 permitting documents from 15 different government agencies for its sites, with 12 of those documents issued by the Regional Committee

⁸ *Environmental Regulatory Reform in the NIS: The Case of the Water Sector*, EAP Task Force Secretariat, CCNM/ENV/EAP(2000)86, OECD, Paris, 2000.

⁹ *Requirements for Environmental Compliance of Russian Industries*, Background Paper for the Tacis “Assistance to the Russian Steel Industrial Sector” project, Ecoline Consulting, 2001.

for Natural Resources. Besides environmental and natural resource use permits, there are also contracts with water and wastewater utilities, waste management companies, etc.¹⁰

91. The complex and ineffective permitting procedures in the NIS also compromise the attainment of environmental goals. The number of regulated polluting substances makes the scope of the permitting system too large to effectively monitor and enforce compliance with the permits. Coordination between permitting authorities is very limited, which results in permits being oriented toward inflexible end-of-pipe solutions rather than pollution prevention. Apart from ELVs, requirements for self-monitoring, reporting, and accident notification are rarely set in permits.

3.2 Establishing Environmental Quality Standards Based on Environmental Objectives

92. The revision of environmental standards will require not only a change in numerical values but a broad-based reform encompassing the principles and the legal basis of standard setting. The scale and scope of the reform may seem prohibitive to a wide range of government stakeholders with often conflicting interests, which discourages agencies from initiating a reform process. It will take new thinking and a strong high-level political commitment to reach consensus among health, environment, fisheries, and natural resources ministries or committees that is imperative for the success of the standardization reform. The key is a combination of planning and regulatory tools applied within a flexible framework.

3.2.1 Flexible Framework of Environmental Quality Objectives and Standards

93. Any country in economic transition, where financial resources are limited, needs to prioritize its environmental investments in order to identify the most appropriate focus for its limited financial resources. The more limited a country's financial resources, the more rigorously it must be able to prioritize its various options for disbursing these resources in pursuit of environmental improvements. It is clear that the NIS need to have a flexible framework of environmental objectives and standards that takes realistic account of their resource limitations.

94. In the NIS, environmental quality standards and objectives have been mistakenly interpreted to mean the same thing. In OECD countries, they have a very different meaning, and an *environmental objective* is defined as a *goal* that an environmental authority (agency) sets for itself, with the intention of actually *achieving* this goal within a defined time frame. The environmental authority should be responsible for achieving the objective and held accountable in case it fails to do so. It is, therefore, in the agency's interest to set objectives that it has a reasonable expectation of achieving. An *environmental quality standard* is a condition, expressed as a limit value, that a particular parameter is required to meet in order to achieve an environmental quality objective. An environmental objective is a *planning tool* and can be expressed in either qualitative or quantitative terms. An EQS is a *regulatory tool*.

95. The necessary distinction between the *planning* and the *statutory* aspects of environmental management is not established in the NIS legislation. Many statutory requirements bear no relationship to what is actually achievable within resource limitations. There is also a cultural barrier to flexibility, in the sense that many NIS institutions and individuals do not feel obligated to respect non-statutory objectives and plans.

¹⁰ Ibid.

96. In order to provide flexibility, it is essential to view the environmental standard setting as a combination of statutory instruments and non-statutory planning decisions. NIS legislation should sanction flexibility by:

- Promulgating various options in terms of environmental quality objectives in medium-specific laws (Water Codes, air protection laws) that already exist in the NIS; and
- Giving to decision-makers (regional environmental agencies in consultation with regional administrations) the mandate to choose between these options in order to establish environmental quality objectives appropriate for specific environmental conditions and available resources.

97. The options that are promulgated in law should each have associated with them a set of numerical environmental quality standards (laid out in an implementing regulation). This ensures that once the decision-makers at the regional or local level have established an environmental objective on the basis of the options promulgated in law, there is a statutory set of environmental quality standards that can be used for monitoring purposes and to calculate emission limit values to either the atmospheric or the aquatic environments.

3.2.2 Principles of Setting Environmental Quality Standards

98. The current system of environmental quality (ambient) standards in the NIS should be revised in light of international best practices and domestic capabilities to less stringent, enforceable levels, striking a balance between what is desirable from an environmental point of view and what is feasible from a technical and economic standpoint.

99. The management of risk is an essential aspect of environmental management, the aim being to reduce risk to an *acceptable level* depending on a specific environmental quality objective. Policy decisions based on *risk management* should dictate new ambient standards for air and water quality for different locations. This will not necessarily make the standards less stringent in every case (although in many it will) but will make them fair and more understandable to the regulated community. The risk management philosophy should also be reflected in expressing environmental quality standards in statistical terms (90 or 95 percentile standards), which is common in the European and North American regulatory systems.

100. *The number of polluting substances regulated should be limited to those that can be effectively monitored* with the limited technical capacity and human resources available. A regulatory requirement makes sense only if it is possible to demonstrate compliance or noncompliance with it.

101. One option for the NIS to come up with numerical values for national environmental quality standards is to use the standards stipulated in the European Union's environmental Directives as a benchmark. It is possible to do so by adopting environmental quality standards that correspond to qualitatively defined environmental objectives (e.g., for individual classes of designated water use). In this way, the NIS would retain the flexibility to apply achievable and affordable environmental objectives for planning purposes, while being able to move closer to the European Union requirements (which is a declared policy goal in several NIS).

102. The adoption of relevant EU standards would also be politically easier to accomplish than trying to develop new standards through a national research and consultation process. Notwithstanding the strong analytical capacity of scientific institutions in the NIS, the elaboration of new environmental quality standards individually in each country would require a long time and face an uncertain outcome. Having

said that, it is important to note that the EU norms should be adapted, as appropriate, to the local conditions (e.g., with respect to the particularities of the natural environmental and the monitoring capacity).

3.2.3 Surface Water Quality Management: An Example

103. All of the concepts described above can be illustrated by application to the management of surface water quality. The first step is to identify the various environmental quality options that will be promulgated in the law. In the case of surface water quality, these are referred to a “classes.” The classes must be hierarchical, i.e., ranked strictly in order of decreasing water quality. The example in Table 3 shows how it is possible to do this. Each class is described in terms of one or more qualitative statements and the uses for which water in that class is deemed to be suitable.

Table 3. Example of Use-Based Surface Water Quality Classification and Standards

Class	Description/Uses	Surface Water Quality Standards		
		Dissolved Oxygen, % saturation 10 th percentile	Total ammonia, mgN/l 90 th percentile	... plus other parameters, as appropriate
1A	Water of very good quality containing little or no wastewater. Suitable for potable supply after basic treatment. Suitable for all other abstractions. Suitable for all fish species. High amenity value.	≥ 80	≤ 0.25	Parameters must be:
1B	Water of good quality, which differs from Class 1A only in the amount of treated effluent that is likely to be present. Suitable for potable supply after intermediate treatment. Otherwise suitable for same purposes as Class 1A.	≥ 70	≤ 0.60	a) appropriate for the uses in each class; and b) measurable at the levels required, in order to assess compliance.
2	Water of fair quality. Suitable for potable supply after advanced treatment. Suitable for agricultural and industrial abstraction. Suitable for high quality coarse fish species. Moderate amenity value.	≥ 60	≤ 1.3	
3	Water of fair quality. Suitable for agricultural and industrial abstraction. Suitable for coarse fish populations. Moderate amenity value.	≥ 50	≤ 2.5	
4	Water of poor quality that is likely to limit coarse fish populations. May be usable for low grade industrial abstractions.	≥ 20	≤ 9.0	
5	Water of bad quality in which fish are likely to be present or where there are insufficient data available by which to classify water in Classes 1 to 4.	-	-	

Source¹¹: Modified from a scheme used in UK National Water Council report, “*River Water Quality: The Next Stage*,” April 1978.

¹¹ The classification scheme described here has been used as the basis for proposals that are being submitted by EU and local consultants to environmental ministries in Moldova, Armenia, and Uzbekistan under the framework of the *EUTACIS project “Support for the Implementation of Environmental Policies and NEAPs in the NIS.”*

104. The use of qualitative descriptions provides a basis for non-specialists to understand what the classes are all about. This is essential when it comes to consultations with stakeholders at any stage of the process of surface water quality management. The descriptions “very good,” “good,” “fair,” “poor,” and “bad” reflect what any reasonably observant non-specialist would be able to deduce from standing on the banks of a river and using his or her common sense. However, each of these classes needs an accompanying quantitative description if it is to provide a basis for detailed planning, involving calculations.

105. The next step is to establish which parameters are relevant to each class, with the intention of establishing class-specific environmental quality standards in an implementing regulation. This can be done, for example, in the case of Class 1A in the example given, by looking at the parameters and associated standards that are contained in European Community Law relating to the two main uses for that class: potable supply after basic treatment and suitability for all fish species. When doing this, the country’s ability to monitor should be considered very carefully.

Water Quality and Use Classification Systems in the NIS

In most NIS, there are water quality classes with respective quantitative indicators. However, these classes are different and detached from the water use designation (for fishing, drinking water abstraction, and recreation, plus, in some countries, industrial and agricultural use) that serves as a basis of water quality standards. (As already mentioned, almost all waters in the NIS are designated for fishing use.) The water quality classes are not used for management purposes, only to characterize existing water quality, while the water use designations are not hierarchical and do not offer flexibility in water quality management.

A new methodology for surface water quality classification has been developed in *Ukraine* in order to set priorities for water quality improvement and “with the aim of approximation to the provisions of EU legislation.” The methodology is built on the ecosystem principle and uses a new method of water quality assessment drawing on the EU Water Framework Directive. Reflecting Ukrainian environmental conditions, the methodology proposes seven water quality classes (as opposed to five under the Water Framework Directive). The new classification system was supposed to be applied across the country and help identify priority areas for urgent actions. However, the methodology has not been implemented, with the Ministry of Environment and Natural Resources citing financial constraints.

Source: *Environmental Regulatory Reform in the NIS: The Case of the Water Sector*, EAP Task Force Secretariat, CCNM/ENV/EAP(2000)86, OECD, Paris, 2000.

106. Once promulgated in the law, a scheme like this would give environmental agencies on the ground the flexibility to set, after a stakeholder consultation, environmental objectives that would be realistically achievable without excessive cost. (This presupposes that the environmental agency has a legislative mandate to set environmental quality objectives taking into account the implementation cost.) *As the environmental quality improves, the quality objectives should be revised to reflect a policy targeting an even better environmental quality.*

3.3 Setting Emission Limit Values for Polluters: Two Aspects of Reform

107. It is increasingly recognized that an optimal definition of ELVs must be based on a combined assessment of environmental quality objectives and the current state of technology for reducing harmful releases. This section describes two possible ways to account for both technology and environmentally considerations in setting efficient permitting requirements, using either one or the other as a starting point.

3.3.1 Two complementary approaches

108. In discussions about setting emission limit values (ELVs) for polluters, there are often references to the so-called “environmental quality objective (EQO) approach” and the “technique-based approach”¹². This assumes that they are mutually exclusive alternatives that achieve the same thing. In reality, the two approaches aim to achieve different things and both have a place in an overall framework for environmental management. They co-exist in the European Union and elsewhere. However, the situations differ in which one approach or the other is the more appropriate to any particular situation. Moreover, each approach has particular strengths and limitations and it is important to recognize these.

109. Technique-based limit values are determined according to what is deemed technically feasible. The emission parameters specified for a particular technique do not depend upon a case-by-case consideration of environmental requirements. The aim is to ensure the adoption of the best technical means for reducing the environmental impact of discharges taking into account the economic availability of those means. At the same time, technique-based regulation does not prescribe particular technologies for particular activities, but sets ELVs that are supposed to give enterprises the freedom to meet them the way they choose, thereby encouraging innovation.

110. Limit values determined by using the environmental quality objective approach are based on the assimilative capacity of the receiving water body (a similar logic applies to ambient air). The ELV setting process considers the required state of the receiving water body, the actual state of the water into which the discharge is to be made and the specific impacts of the discharge in question. The limit values are, therefore, a function of the ambient water quality and the downstream surface water quality objective (and respective standard). This approach is currently used in all NIS, albeit on the basis of unrealistic and overly stringent EQSs.

111. Regulating the technique used for particular processes ensures that the process operates with a technical base that is known to be capable of delivering a particular level of environmental performance. Regulating the quality of the final effluent by the imposition of EQO-based discharge limits ensures that the technique is operated in an environmentally responsible manner, respecting the needs of the local environment.

112. The following table highlights the regulatory function fulfilled by each of these two aspects, together with the risks associated with each.

¹² European Community Law refers to “Best Available *Technique*” and not “Best Available *Technology*” as is often supposed. This means that pollution prevention and control can be achieved through non-technological techniques, i.e. best management practices.

Table 4. Comparison of EQO-Based and Technique-Based Approaches to ELV Setting

Aspect	Regulatory Function	Limitations
EQO-based limit values	<ul style="list-style-type: none"> • Reflect the requirements and sensitivity of the environment, taking into account public health and ecological factors. • Will not be stricter than necessary, so financial burden of pollution control may be less. • Allow a direct correlation between discharge permits and environmental objectives. • Provide an indirect means of regulating the growth of industry in environmentally sensitive areas. 	<ul style="list-style-type: none"> • Determination of ELVs requires a case-by-case consideration of impact upon the receiving water body. • EQO-based ELVs do not take into account economic feasibility.
Technique-based limit values	<ul style="list-style-type: none"> • Provide a way of regulating process techniques that is relatively simple to administer. • Facilitate integration of permits for all media. • Emphasize pollution prevention over end-of-pipe solutions. • Their application is not sensitive to the availability of environmental data. 	<ul style="list-style-type: none"> • Do not guarantee that specific environmental objectives will be met (an EIA is needed to check that). • Do not guarantee final effluent quality, which normally depends on a variety of considerations besides the technique alone.

3.3.2 Best Available Technique (BAT)

113. BAT is intended to refer to the best technique that is available *and affordable* in the local context for particular types of industrial process. At the same time, Best Available Techniques are not limited to expensive technologies, but very often include low-cost and no-cost technical and management pollution prevention solutions.

114. BAT use in the European Union under the *Integrated Pollution Prevention and Control (IPPC) Directive* is restricted to large polluters in selected industries (energy industries, production and processing of metals, chemical industry, waste management, etc.). Its application is restricted to those industries and sizes of facility where the potential for environmental benefit is significant enough to justify the administrative cost of operating the integrated permitting system. An all-embracing environmental management program, therefore, should not be built on the assumption that BAT alone will address all of the environmental licensing needs: there will be industries and other polluters to whom BAT will not apply.

115. Each country should define the scope of its own BAT application: to which industrial processes and, for each of these, what is to be the minimum size of facility to which BAT is to be applied? The country may then want to adapt the existing (EU) BAT reference documents (BREFs)¹³ to the country-specific conditions (developing new notes from scratch is a very resource intensive process). These will define within reasonable operational limits what effluent quality can be expected from the technique to which each refers. Even so, it would be a mistake to assume that a BAT reference note provides some kind of guarantee of the final effluent quality. The effluent quality will only fall within the range cited in a

¹³ BAT reference documents, or BREFs, are compiled for processes regulated under IPPC to inform relevant decision makers about what may be technically and economically available to industry in order to improve their environmental performance. They are produced by the European IPPC Bureau at the Joint Research Center in Seville, Spain.

reference note if it is operated responsibly and properly maintained. Regulators should not automatically adopt *operational quality limits* from BAT reference notes as the legally binding ELVs to be included in a discharge permit. A management decision will always be needed, based upon careful case-by-case evaluation, to ensure that those ELVs that are ultimately adopted will enable environmental objectives to be met.

116. What should a competent authority do if the environmental quality objective cannot be achieved even by the use of BAT at a particular location? There are only two options that are consistent with good environmental management practice:

- Refuse to allow the discharge. The environmental quality objective takes priority.
- After consultation with all stakeholders, relax the environmental quality objective such that the use of BAT would not prejudice compliance. Allow the discharge on condition that BAT is used.

3.3.3 ELVs Based on Environmental Quality Objectives

117. The derivation of ELVs from environmental quality objectives (and respective standards) is essentially a set of mass balance calculations, whose results are then used as a *guideline* for establishing ELVs. There is no formula or computer program whose results can be used *without further question* as ELVs and a fair level of management judgment is always necessary.

118. There are many models available for such calculations (including those currently applied in the NIS) and it does not really matter which of these is used as long as they reasonably represent that statistical variations that characterize environmental variables. The setting of sensible environmental quality objectives and the level of professional judgment applied to the results of the calculation are far more important in determining the ultimate success or failure of whatever method is used.

119. The usual procedure is to take the *environmental quality standards* that are defined for the environmental objective. A mass balance calculation is then performed, to decide what would be the discharge quality that would result in the ambient (water or air) quality just bordering on non-compliance. The environmental authority should then examine the result in the light of three questions:

- Do variations in effluent quality have any significant impact upon the ambient quality? If the answer is “no”, then this means that the environmental benefit of having a strict ELV is not worth the cost of complying with that ELV. Under these conditions it makes sense to adopt an ELV that is consistent with a readily affordable abatement level.
- Does the ambient quality without the discharge (e.g., upstream of the wastewater discharge) already exceed the ambient limit value required? If the answer is “yes”, then a more in-depth planning review is needed, taking into account all the other influences on ambient quality. This will determine whether imposing a strict ELV upon the discharger really is a fair and effective means of regulating ambient quality, or whether attention should be focused elsewhere.
- Is the ELV resulting from the mass balance calculation technologically achievable? If the answer is “no”, then the discharge should be disallowed or the environmental quality objective should be relaxed.

3.4 Creating a Comprehensive Hazardous Waste Regulatory Framework

120. The regulatory approach to managing industrial hazardous waste is conceptually different from management of air and water pollution. In regulating air emissions and wastewater discharges, the emphasis is placed on limiting the loading of pollution into the environment. In hazardous waste management, it is the *handling* of waste that is the focus of the regulation. A sound industrial hazardous

waste management system relies heavily on strict command-and-control regulatory mechanisms (technique-based standards, permits, monitoring and record keeping, and enforcement) concerning generation, storage, transport, treatment, and disposal of wastes. The cost of appropriate handling of hazardous waste, if fully internalized by its generator, serves as the main incentive for waste minimization at the source.

121. The NIS are in very early stages of developing an appropriate regulatory framework for industrial waste management. Having ratified the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the countries of the region have not designed coherent national hazardous waste regulations. In many NIS (e.g., Armenia, Uzbekistan), there are no industrial waste management laws or programs besides some basic regulations on waste classification and ineffective limits for waste generation and disposal. Others, like Russia and Ukraine, have promulgated laws on waste (Russia's 1998 Law on Waste Generated in the Process of Production and Consumption and Ukraine's 1998 Law on Wastes) but have developed very few regulations that would allow for actual implementation of those laws. The incomplete and inconsistent legal structure hampers the implementation of respective government programs on industrial waste management.

122. Among NIS, Russia has made most progress in developing elements of a regulatory framework for industrial waste management, which includes¹⁴:

- permitting for generators and disposal sites,
- a federal waste cadastre introduced but not yet implemented (it is supposed to comprise a catalogue of generators, a register of waste disposal sites, and a database of waste management technologies),
- a system of waste classification based on four classes of toxicity (dating from the Soviet times), and
- procedures for determining hazard classes of landfills.

123. The following are the principal weaknesses of Russia's current system, most if not all of which are also present in other NIS:

- Definitions of hazardous waste are not harmonized with the terms recognized internationally (e.g., in the EU). Many regional authorities have adopted variant classification systems.
- There is an emphasis on setting limits for hazardous waste generators in enterprise permits and so-called "waste passports." These 5-year limits are usually based on the actual volumes of waste generation and do not provide flexibility or incentives for waste minimization. The only valid rationale for establishing allowable limits for hazardous waste is a presumption, in view of the lack of disposal facilities, that the wastes are disposed of in the environment in an uncontrolled manner. In reality, the limits are primarily used as a basis for waste charges (see Section 4.3).
- The law does not specify monitoring and inspection procedures for hazardous waste storage and disposal sites and transportation vehicles (although appropriate marking is required).
- Record keeping forms exist only for hazardous waste generators, and even those contradict actual waste management legislation. No records are established for continuous tracking of waste movement.

124. In order to be effective, the system of command-and-control regulation for hazardous waste management in the NIS should include the following elements¹⁵:

¹⁴ *Support to Waste Management in Russia: Analysis of the Legislative System*, Tacis, November 2001.

¹⁵ The EU Hazardous Waste Directive (91/689/EEC) is a good benchmark for such a comprehensive regulatory framework for hazardous waste management.

1. Promulgated in the national legislation, *an internationally compatible definition of hazardous waste and a waste classification system* that would allow unambiguous characterization of waste as part of one category (or class of toxicity) or another. (Ukraine, for example, has already done this.)
2. *Registration* with the competent authority (usually a regional environmental agency), through a license or permit, by all enterprises of the sources and types of hazardous waste they *generate* and the quantity of the hazardous waste generated.
3. *Detailed rules (promulgated in a regulation) for safe handling of hazardous waste*, making the generator responsible for the waste until it reaches its final destination.
4. *Registration* with the competent authority by all enterprises of the way in which they intend to *manage* any hazardous waste on-site or transport off-site for management or treatment, including recycling.
5. *Registration* with the regulatory body of *hazardous waste in storage*, including its types, volumes, storage conditions, etc.
6. *Technique-based (BAT) standards* for design and operation of treatment (including recycling), storage, and disposal facilities for hazardous waste.
7. *Registration and licensing of operators* of collection, treatment, storage, transportation, and disposal of hazardous waste in accordance with technique-based standards.
8. *Standards for the design and construction of vehicles* for transporting hazardous waste and *specifications for waste containers*.
9. *Standard requirements for labeling* of hazardous waste containers and vehicles (this has been already done in some NIS).
10. A *manifest* (declaration) system (with an appropriate record keeping and reporting regimen) that will control waste movement from the place of its generation to its final destination (“cradle-to-grave”). Creation of a computerized system for recording and cross-checking of manifest information.
11. *Monitoring, record keeping, and reporting procedures* for hazardous waste treatment, storage, and disposal facilities. Severe penalties for failure to comply with all the regulatory requirements.
12. Requirement for all operators of collection, treatment, storage, transportation, and disposal of hazardous waste to prepare, regularly update, and report to the competent authority an *emergency preparedness and response plan* (for spills and other accidents).
13. Programs for eliminating unauthorized, old and abandoned hazardous waste disposal sites.

125. As long as a stringent regulatory system is in place, a distinction between waste generation levels below allowable limits and levels exceeding allowable limits is unnecessary. The limits for waste generation should be phased out following the establishment of a comprehensive regulatory system for waste management. Technique-based standards for treatment, storage, and disposal facilities, and performance standards for hazardous waste transporters should form the basis for the issuance of waste management permits.

126. Before the system can operate, however, it will be necessary to develop several (probably) regional treatment and disposal facilities in industrial centers. All facilities, whether on-site or off-site, must be built to standard specifications for the protection of public health and the environment. Thus, the existence of standards and their rigorous enforcement will create the *certainty* of a demand for services. This certainty will lead to the creation of service companies (that will charge appropriate fees) to fill the needs of this sector.

127. The issue of charges for waste generation and handling is discussed in more detail in Section 4.3.

3.5 Gradual Transition Toward Integrated Permitting

128. The existing environmental permitting systems in the NIS need to be *gradually* improved. Several NIS have already expressed their desire to progressively move toward a single integrated permit system instead of currently separate permits for air emissions, wastewater discharges, and waste storage and disposal. The most feasible benchmark for this process is the EU's IPPC Directive that applies the BAT approach (see Section 3.3.2) to large polluters in a range of industrial sectors. At the same time, small and medium-sized industries should continue to receive permits with ELVs based on environmental quality standards.

3.5.1 Improvement of Permitting Procedures

129. While integrated permitting is a worthy long-term goal for the NIS, the transition will take many years. In the short-term, the goal should be to improve permitting procedures. **Industrial enterprises should be able to apply for and obtain only one environmental permit**¹⁶. Consolidation of existing single-medium permits into one document can be achieved through increased transparency and coordination between permit-issuing authorities at different steps of the permitting process:

- An environmental agency at an appropriate administrative level (regional, local, or, in special cases, national, depending on the type and size of enterprise) should be designated in the law as the “principal” permitting authority which would coordinate all other competent authorities’ inputs.
- Upon submission by the enterprise of a consolidated permit application, the environmental agency should determine what environmental laws and regulations are governing the applicant’s industrial activity and environmental impacts.
- Provided the information on the application is complete, the environmental agency should forward copies of the application to other competent authorities (health authorities, local administration) and request them to grant or decline their approval, prepare their respective permits (within a specific time frame), attach criteria and specifications upon which the approval is conditioned, and forward relevant documents back to the environmental agency. Similarly, the environmental agency should prepare the medium-specific permits it is directly responsible for.
- Permits should contain a comprehensive set of information. Apart from ELVs (currently, often the only written conditions in permits in the NIS), the permit should detail compliance measures (if those are mandated under the permit) and their schedule, emergency response requirements, self-monitoring, record keeping, and reporting conditions, and permit renewal requirements.
- The environmental agency should then prepare and issue a consolidated permit that references all the attached criteria and specifications of individual licenses and approvals. If the permit application is denied, the enterprise should have the right to appeal to a designated authority (e.g., the national environmental agency).
- Public consultation should be an indispensable part of the permitting process. The public within a “zone of influence” of the enterprise applying for a permit should be informed that the application has been submitted, as well as of their right to review and comment on the application. Once a permit has been issued, the public should be able to freely access a copy of the permit. Citizens should be able to appeal a permitting decision.

¹⁶ Lessons learned from the experiments in several NIS with such consolidated permits (so-called “ecological passports”) could be considered (see text box).

Russia's Experience with Ecological Passports

In recent years, there have been attempts in Russia (as well as in Armenia and several other NIS) to develop an integrated approach to environmental permitting, based on issuing one "ecological passport" to enterprises instead of several permits that are currently required.

In 1990, a formal "state standard" required all industrial facilities to prepare such passports. However, the practical implementation affected only large enterprises, and the ecological passports proved to be a costly duplication rather than a substitute for medium-specific, MAD-based permits. Moreover, it was a static record without any updating procedures. The positive aspect of ecological passports was that they required enterprises to analyze and present a broad profile of their environmental impacts, including resource consumption, waste management, recycling, effectiveness of pollution treatment methods, etc.

In 1998, a new attempt to introduce ecological passports resulted in the development of a draft new regulation stipulating a possibility of receiving one integrated permit for discharges into air and water and waste disposal. However, the new requirement has never been enacted, and the 1990 "standard" is practically disregarded.

Source: *Initial Considerations on How to Implement BAT in Russia*, Working Paper No. 11, Tacis project "Institutional Support to Goskomekologiya," April 1999.

3.5.2 Introduction of the BAT Approach

130. Those NIS that are planning to introduce BAT-based integrated permitting should take initial steps already in the short term. The first step would be to establish a list of industrial sectors and the minimum size (production capacity or output) of installations to be controlled under BAT. This determination may be guided by the list of sectors and size thresholds stipulated in the IPPC as well as priority polluting sectors in the country. In other words, initially, the range of industries covered by BAT-based permitting may be narrower in the NIS than in the EU, with a possibility to expand in the future.

131. The second step is to start the preparation of BAT notes (reference documents) for the selected sectors. The BAT notes should be based on similar notes for the EU (BREFs) but should be adapted to contain information on technologies that are available in the NIS and are economically viable in the socio-economic conditions in the NIS. Although these notes will have no statutory force, they will ensure consistency in what is considered BAT in each country and limit the discretion of environmental authorities negotiating individual permits. Environmental authorities should cooperate with ministries of industry and other sectoral agencies, as well as industry associations to assess what techniques may be considered BAT in a particular country.

132. NIS governments should work with international donors to conduct demonstration projects at enterprises in the target sectors who are willing to switch to the new permitting approach. Those should be facilities with a good potential for benefiting from BAT introduction. In Russia, for example, there is a joint Russian-Finnish-Swedish project under the LIFE program that is testing technique-based permitting at several enterprises in St. Petersburg. Two facilities, a wastewater treatment plant and a cardboard and printing factory, have gone through the entire process from submitting a consolidated application to receiving an integrated technique-based permit from the local environmental agency. The enterprises used guidance documents of HELCOM (the Baltic Marine Environment Protection Commission) for selecting appropriate technologies and proposing respective ELVs for the permit¹⁷.

¹⁷ Leonid Korovin, HELCOM expert for Russia, personal communication, 2002.

133. In the next phase of implementation (in the medium term), the legal framework for the introduction of integrated permitting should be put in place. The current legal frameworks in many NIS give enough room to accommodate this approach, since many countries have already stipulated possible use of BAT and emphasized pollution prevention in their environmental laws.

134. There are two different management approaches that may be used in the transition to the new system:

- The *stepwise approach* is based on the idea that the different industrial sectors (energy, metallurgy, chemicals, etc.) become subject to integrated permitting sequentially over a period of time.
- The *successive approach* is based on the concept that targeted installations will have to apply for an integrated permit when the existing permit expires. New installations will require an integrated permit before they can begin operations.

135. Table 5 summarizes the advantages and disadvantages of the two approaches. A decision on which approach to adopt should be made once the coverage of integrated permitting (in terms of sectors and facilities) has been determined.

Table 5. Two Approaches to Gradual Introduction of BAT-Based Integrated Permitting

Approach	Advantages	Disadvantages
<i>Stepwise</i> – sector by sector	<ul style="list-style-type: none"> • Allows to prioritize which industrial sectors become subject to integrated permitting first (based on their environmental impact, economic significance and investment potential, or status of BAT notes preparation). • Helps gain experience and build institutional capacity before moving on to other sectors. 	<ul style="list-style-type: none"> • Focuses more on existing facilities, for which the transition may be difficult. • May disrupt the existing permitting cycle.
<i>Successive</i> – based on expiry of existing permits	<ul style="list-style-type: none"> • Focuses on new facilities and allows existing ones to better prepare for the transition. 	<ul style="list-style-type: none"> • Requires extensive capacity within the permitting authority to cover many sectors.

Source: Adapted from “*Approximation of IPPC Legislation in Moldova*,” by N. Sheridan, National Workshop on IPPC, Chisinau, Moldova, 25-26 January 2001.

136. Also in the medium term, BAT notes will have to be finalized, the permit application process and permit structure approved, and a mechanism for public consultation set up. The financial implications of introducing BAT should be assessed, and incentives introduced for enterprises to adopt BAT. Such incentives may include a more lenient regimen of inspections, less stringent reporting requirements, etc. Institutional capacity should be built through training, information dissemination, and pilot activities. *The actual transition to integrated permitting should start in the long term.*

4. ENSURING COMPLIANCE WITH THE REQUIREMENTS

137. This chapter deals with regulatory, economic, and information-based instruments that can be effectively used in a package to bring the regulated community into compliance with the requirements represented by standards and permits. Not only are monitoring and reporting, enforcement, liability and compliance promotion, pollution and product charges complementary, they are also interdependent. Without effective monitoring and reporting, neither enforcement nor pollution charges will achieve their purpose, while compliance promotion will turn into a futile effort without strong enforcement, to name just a few of the linkages. The chapter suggests the principal ways to improve each of the instruments in the NIS while seeking to emphasize the importance of parallel reforms of other elements of an environmental management program.

4.1 Monitoring and Reporting – Keys to Compliance

138. Without regular, methodical, and accurate monitoring and timely and truthful reporting of its results neither the government nor the polluters will be able to make informed decisions about achieving compliance with the established requirements and broader environmental objectives. Two types of monitoring are necessary for verifying compliance with environmental requirements and inform policy makers and other stakeholders: (1) ambient monitoring in all media (air, water, and land) by the government to check compliance with environmental quality standards; and (2) mandatory self-monitoring by industry of its environmental impacts (natural resource use, air emissions, wastewater discharges, and waste management practices).

4.1.1 Ambient Monitoring

139. While the western NIS had relatively extensive monitoring systems as a legacy from the Soviet Union, countries in Central Asia and the Caucasus had weaker systems to begin with, and those were pushed close to collapse by budget cutbacks. Monitoring functions are dispersed between Hydromet agencies (usually autonomous bodies within the system of environmental protection) responsible for ambient monitoring, Sanepid inspectorates (under health ministries) monitoring air and drinking water quality in populated areas, water basin authorities, some regional environmental departments that have their own monitoring units, and industrial monitoring laboratories. Often, different institutions have to gather the same data because they are not exchangeable, as their databanks are incompatible.

140. The problems are aggravated by the low quality of monitoring equipment and laboratories. Some of them are in critical state. Many laboratories lack basic equipment and reagents as financing and technical support to monitoring systems of all NIS have declined dramatically during transition period.

141. Only a small fraction of the number of polluting substances regulated are actually monitored (see the discussion on standards in Section 3.1). Moreover, there is no continuous monitoring even for the contaminants that can be measured.

142. National efforts, supported by international assistance (e.g., assistance by the World Meteorological Organization and USAID to the Hydromet in Armenia), have recently started to rebuild these systems (providing monitoring equipment, developing databases and other information systems). However, the implementation of institutional reforms to streamline the collection and management of environmental data has been slow. Moreover, monitoring is often done for its own sake, and the data

(whichever are collected) are not used as an input to policy-making. As a result, limited resources have been used ineffectively, reducing even further the performance of the monitoring systems.

143. The problems of improving monitoring support facilities and equipment cannot be solved in the short-term, as this requires significant financial investment. Therefore, it is necessary to prioritize monitoring programs by targeting those pollutants or industries that are most important from the immediate impact on human health and on ecosystems. However, this cannot be done without changes in the legal requirements to limit the number of pollutants subject to control. These changes would help to increase the credibility of monitoring and control systems as many pollutants are not measured in practice due to the lack of resources.

144. National environmental authorities should strengthen their coordination of environmental monitoring activities. These reforms will have to overcome the vested interests of different institutions that are likely to resist sharing the data that they currently collect. ***A coherent and comprehensive national monitoring system should be developed, for which the harmonization of data systems and methodologies is a prerequisite.*** The data should also be systematized, integrated, and processed for management decisions¹⁸.

4.1.2 Self-monitoring

145. Mandatory self-monitoring of environmental impacts promotes compliance by assuring that each polluter routinely has the information it needs to choose compliance. Another reason for requiring self-monitoring is that environmental authorities never have the resources necessary to monitor each pollution source. Self-monitoring done at the expense of polluters themselves is also consistent with the “polluter pays principle.”

146. At present, self-monitoring and reporting is done only at large industrial facilities in the NIS. In Armenia, self-monitoring is carried out only by 10 out of 300 large enterprises, and in Kazakhstan, only 4% of enterprises conduct self-monitoring.¹⁹ Even where self-monitoring is performed, discharges are usually calculated on the basis of technological specifications of the facility and not actually measured. As a result, the widespread deterioration of the equipment is not taken into account, and discharges are underreported. Reported values are checked only sporadically by the regulators.

147. The first step in improving this situation is to ensure that there are ***clear legal requirements for self-monitoring***. Self-monitoring should be mandated in the law and be part of the conditions written into each facility’s environmental permit. It should cover all the environmental parameters (polluting substances and types of waste) included in the permit. (Those parameters that cannot technically be monitored should not be included in the permit.) The permit should also define the *frequency and method* of self-monitoring for all relevant parameters. Self-monitoring requirements should be accompanied by enforced requirements for record keeping (including appropriate forms), making the records available for inspection, and periodic and emergency reporting to the competent authority.

¹⁸ The UNECE Working Group on Environmental Monitoring is currently working on a part of the 3rd pan-European assessment report on the environment that will appraise the needs of the NIS and other countries in transition in collecting and reporting environmental data and information, and will make recommendations on how to improve the monitoring and reporting frameworks.

¹⁹ Julietta Glichyan, Ministry of Nature Protection of Armenia, and Bek-Bulat Eleushov, Ministry of Environment of Kazakhstan, 2002.

148. A pertinent regulation must also include enterprises' responsibility to take sufficient steps to ensure accuracy of data collection, either through certification of its own monitoring equipment or by using (and paying for the services of) government-certified laboratories. The environmental agency needs to ensure that the same quality criteria are applied to government, industrial, and other private laboratory facilities.

149. The law should define tampering with control or monitoring equipment to give false results, false reporting, in intentional failure to report, as serious offences. Penalties for falsification should be significant and can apply both to the company itself and the managers responsible. On the other hand, incentives such as reduction in the number of inspections should be developed to encourage industry to invest in self-monitoring. The environmental agency may introduce a policy that timely self-reporting of violations accompanied by good faith efforts to correct them should be entitled to some leniency in terms of severity of penalties.

150. Self-monitoring legally required by legislation should be distinguished from environmental audits that are voluntary but may be encouraged by the environmental agency as part of compliance promotion efforts (see Section 4.5). Although environmental audits may help industrial facilities achieve compliance by more cost-effective pollution preventing means than the law requires, they are no substitute for official compliance with the more basic self-monitoring measures established by law and applicable to all.

4.2 Strategic Enforcement and the Hierarchy of Sanctions

151. Noncompliance with environmental requirements is arguably the most serious problem of environmental management in the NIS. The causes of this problem are manifold and interrelated, and are fairly common to all countries of the region:

- *Unenforceable and unfeasible regulatory requirements.* The declarative and often contradictory laws and regulations adopted by the NIS over the last decade are in many cases not directly enforceable. In other cases, environmental laws often do not explicitly refer to other acts (Administrative Codes, the Criminal Code, etc.) for relevant sanctions against violators, leaving too much discretion in the hands of local enforcement agencies. The unfeasibility of requirements set in standards and permits (see Section 3.1) creates an adverse regulatory climate, as enterprises are almost always in breach of the law. This fosters a general disbelief in the fairness of regulatory requirements and encourages compliance evasion.
- *Lack of political commitment to effective enforcement.* In some countries of the region (such as Russia and Ukraine), enforcement institutions have broad statutory authority and a wide range of enforcement tools at their disposal, but have a weak standing vis-à-vis local governments and industry. In others (e.g., in Georgia and Armenia), the powers of enforcement agencies have been curtailed in recent years. (In Armenia, for example, the state environmental inspectorate is restricted by a presidential decree to one inspection per year, which for recalcitrant violators is clearly insufficient.)
- *Wrong emphasis of enforcement activities.* The effectiveness of enforcement efforts is not measured in the NIS in terms of their ultimate impact on environmental conditions. The emphasis on activity indicators (numbers of inspections, number of violations identified, value of monetary penalties, etc.) gives inspectors no incentive to engage in compliance promotion.
- *Lack of enforcement strategies.* Enforcement agencies in the NIS apply the law inconsistently and chaotically. The absence of enforcement strategies partly stems from the poor knowledge by the inspectors of the regulated community, particularly in cases where inspectorates are institutionally

separate from permitting authorities. Sanctions (mostly fines) are more frequently used in cases of small offenses than for major violations, particularly if powerful economic or social interests are involved. Fines, even when applied, are too low to deter noncompliance. Other enforcement responses are rarely used. This undermines the basic principle of equality before the law, leads to corruption, and perpetuates the already existing in the NIS general disrespect for the law.

- *Lack of support from the court system.* The inadequate conditions for environmental litigation also undermine the authority, and influence of, environmental enforcement institutions in the NIS. The judges are not experienced in environmental issues (in Russia, at some point there were specially designated judges for environmental cases, but this practice was abolished several years ago) and often pose unacceptable burdens of proof on environmental inspectors. As a result, environmental authorities often lose cases and are reluctant to go to court at all. A further hindrance is the lack of specific procedures in courts to deal with environmental offenses. The length of time for cases to be heard can be significant. Overall, these problems reflect the generally inadequate state of judicial system in the NIS.
- *Declining institutional capacity of enforcement agencies.* During the past decade, the financing of environmental enforcement agencies went through a steady decrease. The agencies lose their personnel, particularly environmental lawyers, due to low salaries and the general lack of operational funding. Staff training (on new regulations, inspection procedures, etc.) is anecdotal or simply absent. The lack of basic facilities and analytical equipment prevents inspectors from carrying out their duties.

152. A positive development in addressing these deficiencies in the NIS-wide context is the establishment in 2000 of the NIS Environmental Compliance and Enforcement Network (NISECEN) which aims to serve as a cooperation mechanism for improving enforcement and compliance promotion practices. An important step in this direction would be the adoption of common “Guiding Principles for Environmental Enforcement Authorities in Transition Economies of Eastern Europe, Caucasus and Central Asia” that are being discussed at the time of the writing of this report.

4.2.1 Strategic Focus on Deterrence

153. First and foremost, the purpose of enforcement should be to dissuade others from committing the same offense, whether major or minor. ***Affecting environmental behavior on a positive basis should be the principal objective of enforcement.*** Punishment for the offense should be a secondary purpose, and certainly used, especially, for example, in criminal cases, but always with considerable discretion and for the sake of reinforcing the principal purpose.

154. All enforcement activities should create a widespread perception of *deterrence with fairness* as the strategic motivator for polluters to comply with regulatory requirements. On the one hand, it is important to project inevitability or high likelihood of monetary and other penalties that would far outweigh the wrongful economic benefit from non-compliance. On the other hand, enforcement authorities need to demonstrate tolerance toward those enterprises who engage in self-monitoring (and even self-auditing) to find their violations. In other words, to maintain a good reputation and the credibility of its deterrence, environmental enforcement agencies should avoid both penalizing unfairly enterprises whose violations happen to be detected while they are correcting and preventing them, and failing to penalize those who do not comply.

155. Each environmental enforcement agency should develop a program or strategy that would be tailored to a particular regulated community and effectively combine activities to both enforce and promote compliance with regulatory requirements (see Section 4.5 for a discussion of compliance promotion instruments). The first step is to identify which groups are regulated, and to understand their ability,

motivation, and willingness to comply. For industrial enterprises, information should be obtained on name, location, type of operation, permits, types and quantities of regulated materials used and pollutants released, and possible significant environmental risks. An accurate profile of the regulated community serves as a enforcement needs assessment and helps focus the compliance strategy and optimize its effectiveness. It is also valuable for designing compliance monitoring schemes. The process of profiling the regulated community makes polluters aware of the requirements, aware that the enforcement officials know who they are, and aware that they are expected to comply. This contact with the regulated community is the first step in creating a perception of an effective enforcement.

156. Informed by the profile of the regulated community and the ambient monitoring data, the enforcement agency should set priorities among (1) geographical areas (targeting environmentally problematic ones first); (2) polluting enterprises, depending on their impact on human health and the environment; and (3) enforcement tools that may or may not be most appropriate enforcement responses.

157. The effectiveness of enforcement programs or strategies should be evaluated using a set of adequate indicators that have to be developed and adopted. The indicators should include both environmental improvements (e.g., pollution reduction amounts) and enforcement results (compliance rates, timeliness of compliance actions, etc.).

4.2.2 Hierarchy of Enforcement Responses

158. Enforcement agencies need to possess and utilize the entire hierarchy of enforcement tools. Response mechanisms may be informal or formal. Informal responses advise the polluter what violation was found, what should be done to correct it, and by when. The goal of informal action is to bring the violator into compliance or to initiate a formal legal process. Formal enforcement mechanisms (either civil or criminal) are backed by the force of law and accompanied by procedural requirements. Civil actions may be administrative (directly imposed by the enforcement agency) or judicial (imposed by a court or other judicial authority). Actions that seek compliance are ordinarily pursued in the following sequence, based on the seriousness of offence:

- (1) Informal responses, such as warning phone calls and letters with compliance recommendations;
- (2) Formal warning letters and notices of violation;
- (3) Monetary penalties (fines), administrative or judicial, accruing as long as the illegal situation persists;
- (4) Suspension or cancellation of the permit(s), facility shut-down, forced corrective actions, or attachment of property, all of which may be required by administrative or judicial order;
- (5) Criminal punishment, including imprisonment.

159. The “appropriate” response should be proportionate to the violation and take into consideration factors of aggravating or mitigating nature. In addition, the timeliness of the response should also be guaranteed: case-opening decisions must occur at defined intervals after inspections, and without undue delay. For the remedies listed above, internal enforcement agency guidelines (enforcement-response policy) should define the criteria for selecting one enforcement response over another.

160. For the largest number of ordinary environmental violators, the punishment will be a monetary penalty. A large monetary penalty can be a strong incentive to compliance by making the violator pay far more than was gained by the non-compliance. (A penalty that is imposed although compliance cannot be achieved or that is too small will just be seen a cost of doing business as usual and will not improve environmental behavior.)

161. If the violator fails to take required actions to correct the violation despite vigorous warnings and monetary penalties, the enforcement agency should proceed to the next level of enforcement responses, such as permit revocation. In the NIS, permit revocation is sometimes used to make the enterprise pay higher noncompliance fees, which sends a wrong enforcement signal. To be effective, environmental permit suspension or cancellation should lead to a shutdown of the enterprise. Thus, suspension or withdrawal of a permit – or the threat to do so – is a powerful weapon. However, as emphasized above, the objective of enforcement is primarily to achieve compliance. Punishment is secondary, and punishment that suspends operations or shuts down an enterprise obviously hurts the community as well. Therefore, such a remedy should be used *sparingly and credibly*. Similarly, attachment (confiscation) of property (cash assets, products, raw materials, vehicles, equipment, buildings, etc.) should be used as a last resort against enterprises that fail to pay monetary penalties, due environmental charges or taxes, or damage compensation (see also Section 4.3.3 on debt collection). Forced corrective actions are measures physically imposed on the enterprise (at its expense) by enforcement agency representatives if the enterprise fails to take them within the required timeframe.

162. Criminal punishment for managers of an enterprise found in violation of the law should normally be applied in the face of such *aggravating factors* as: (1) tampering with control or monitoring equipment to produce false reports; (2) other falsification of documents or reports to the competent authority; (3) operating without a permit where the requirement for a permit is long-established and well known; and (4) clear evidence of wrongful intent or motivation such as greed, repeated violation, and serious environmental harm known to the offender.

163. At the same time, in order to reward responsible behavior by enterprises with minor environmental violations, the enforcement agency may offer amnesty, or forgiveness and relief from penalties, under the following *mitigating conditions* (they should also be laid out in the agency's internal guidance documents):

- The violation was discovered and formally disclosed to the enforcement agency by the enterprise within a specified and short time period, before the agency detected it or began an enforcement activity.
- The same or similar violation have not occurred within a recent specified period of months or years, and is not part of a pattern of ongoing, regular violations that were allowed to continue by the enterprise.
- The violation was not intentional (criminal), and has not caused serious harm or danger to human health or the environment.
- The enterprise is cooperating with the enforcement agency and has corrected the violation and any environmental damage within a specified time period.
- The enterprise commits to establishing a formal, voluntary environmental auditing program (that goes beyond the legally required self-monitoring) in order to implement additional measures to prevent and detect possible future violations.

164. Judicial responses (civil or criminal) involving the courts are generally used against more serious or persistent violators. In order to be able to rely on the court system in their enforcement actions, NIS environmental authorities should consider mechanisms to improve the awareness of court personnel on environmental enforcement issues. They should engage in a dialogue with (arbitration and regular) courts and lawyer associations to plan educational seminars for lawyers and judges on the specifics of environmental cases.

4.3 Reforming Economic Instruments to Ensure Their Incentive Impact

165. From the government's perspective, economic instruments for environmental protection serve two purposes: (a) to raise revenue for financing environmental protection activities and (b) to provide incentives to reduce pollution. Through their incentive impact, economic instruments reduce the overall compliance cost to the regulated community by concentrating pollution reduction measures where their marginal cost is the lowest. While in the conditions of severe underfunding of environmental programs, revenue raising is the predominant consideration in the NIS, this section will concentrate on enhancing the incentive impact of economic instruments on compliance with environmental requirements²⁰.

166. All the NIS use economic instruments for environmental protection. Pollution charges are the main and most comprehensive type of economic instrument used for environmental protection in the NIS. They are the main subject of this section. Environmental product charges are also used in several countries of the region and will be briefly discussed. Tradable emission permits are not discussed in this section: immature markets and poor self-monitoring, reporting, and information management capabilities in the NIS make the introduction of this instrument unrealistic in the near future.

4.3.1 The Current System of Pollution Charges

167. The pollution charges in the NIS are levied on a large number of air and water pollutants, and on solid waste (except Georgia). They are integrated with systems of enterprise-specific discharge limits specified in permits. The basic rates of the charges apply for discharges within the limits, whereas higher non-compliance fees (typically a multiple of the basic rate – from 20% in Uzbekistan to 15-fold in Belarus²¹) are levied on exceedances of the limits.

168. Despite the sophistication of the pollution charge system, its incentive impact on polluters' behavior have been close to zero across the NIS. There are several reasons for this:

- The system covers a very large number of pollutants (for example, 214 air pollutants and 197 water pollutants in Russia; 1217 air pollutants and 1345 water pollutants in Kazakhstan), making it *difficult to administer*. Armenia has recently made a positive step of reducing the charge base to 10 air pollutants and 19 water pollutants²².
- The level of pollution charges varies significantly among the NIS but is still too low (partly because the rates have been eroded by high inflation) to provide an incentive for reducing pollution: it is cheaper to pay the charge than to invest in pollution prevention and control. Figure 2 shows the level of charges for sulfur dioxide for various NIS, illustrating the difference in rates among the countries. In 2001, the highest rate was in Georgia at 43 USD/ton. For comparison, in Denmark, the SO₂ emission tax had a rate of 1,340 EUR/ton in 2000, and in Norway it was 2,100 EUR/ton²³. The higher non-

²⁰ Natural resource taxes (for water abstraction, mineral resources and hydrocarbons extraction, forest use, hunting and fishing, etc.) lie outside the scope of this report. In the NIS, they are used almost exclusively to collect budget revenue and provide no incentive for improved management of natural resources. See also "Natural Resource Taxation in the Russian Federation" (working title), OECD, forthcoming, 2003.

²¹ Russia used to have a 25-fold noncompliance fee for exceeding temporary discharge limits, but is now considering introducing a flat rate for a new system of pollution taxes.

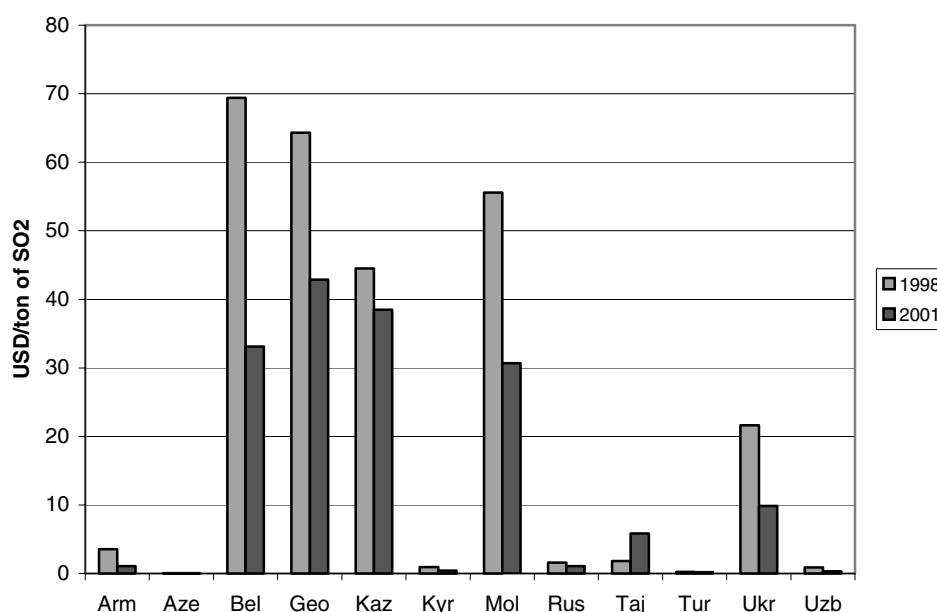
²² *The Use of Economic Instruments for Environmental Protection and Natural Resource Management in the NIS* (tentative title), forthcoming, COWI, 2002.

²³ *Environmental Taxes in an Enlarged Europe: An Analysis and Database of Environmental Taxes and Charges in Central and Eastern Europe*. The Regional Environmental Center for Central and Eastern Europe, October 2001.

compliance fees could, in principle, compensate partly for the low base rates and add to the incentive impact, but the compliance thresholds (discharge limits) themselves are often unfeasible (see Section 3.1).

- Monitoring of actual discharges takes place only for very few substances, and in many of the countries discharges are only estimated (as a function of the employed technology, input of materials, level of production, or similar parameters). This, too, lowers the incentive impact of pollution charges, because polluters do not get a financial reward for making environmental management improvements.
- Most NIS (Georgia being a notable exception) currently impose a pollution charge on the “placement” (storage and disposal) of industrial hazardous and solid waste. This charge is, in fact, a charge on waste generation, based on the toxicity classification, and is tied to the technology-based limits for waste generation that are part of a permit issued to every enterprise. In Ukraine, for example, the formula for calculation of the charge also includes a coefficient reflecting the safety of the disposal site (including a multiplier of 10.0 for uncontrolled dumps). A coefficient like this implicitly legalizes indiscriminate dumping under the assumption that environmentally safe waste management facilities are not available. At the same time, there are practically no enforceable waste management regulations in the NIS that would prevent unauthorized dumping. In Russia, wastes accumulated on the site of an industrial plant were (under the recently abolished pollution charge system) subject to just 30% of the charge applicable to landfilled waste. Thus, enterprises had an incentive to store their waste on-site (with very little monitoring), as this option was cheaper than either recycling, treatment or disposal to landfill²⁴.

Figure 2. Pollution Charge Base Rates for Sulfur Dioxide Emissions in the NIS, 1998 and 2001



Source: *The Use of Economic Instruments for Environmental Protection and Natural Resource Management in the NIS* (tentative title), forthcoming, COWI, 2002.

- Although there are differences in collection rates among the countries (with a few exceptions, they vary between 60% and 80%), revenue collection is a problem throughout the NIS. The rates have

²⁴ Support to Waste Management in Russia: MBI Situation Report, TACIS, June 2002.

recently increased in the countries where the responsibility for collection has been transferred from environmental to tax authorities (e.g., in Russia and Ukraine), but even there it is far below 100%. Several factors contribute to the low collection rates: poor financial condition of enterprises (particularly heavy industries); lack of strong sanctions against non-payment; limited enforcement capabilities; and excessive administrative discretion (and resulting abuses) on waivers and offsets of charge payments for environmental investments at enterprises (on offsets, see also Section 4.5.4).

- Enterprises often provide the information late and, in some cases, underreport their discharges. There is a lack of administrative control over the assessment process: environmental authorities do not have resources to compare actual discharges with the numbers submitted by the enterprises as the charge base. This leads to underestimation and delays of payments that are due, and further cripples the collection of revenue.

4.3.2 Redesigning the Pollution Charge System

169. A number of actions need to be undertaken to eliminate the most obvious flaws in the present pollution charge system and increase its incentive impact. The first step would be to significantly simplify the system through a ***drastic reduction in the number of pollutants on which charges are levied***. The charge base should constitute major and priority pollutants that can be monitored at reasonable costs. The following are essential considerations in narrowing the charge base:

170. ***Elimination of Pollution Charges on Waste.*** The limits for industrial waste generation are based on actual technologies and practices, so the charges (as low as they are) do not provide any incentive for waste minimization. The revenues from pollution charges on waste generation are not conveyed to operators of industrial landfills for the development of waste management facilities but are distributed to the environmental funds or go directly to the general budget. This results in inadequate investment in waste management facilities and inappropriate disposal practices. In addition, the current system of charging for waste generation without stringent regulatory control over safe management of hazardous and solid waste discourages the development of a market for waste management services in the NIS.

171. In combination with the introduction of a comprehensive industrial waste regulatory framework, the NIS should consider eliminating or phasing out pollution charges for industrial hazardous and solid waste and allow providers of waste collection, transport, storage, treatment, and disposal services to charge enterprises *directly* for these services in order to recover the full costs of safe management of the wastes. Such “tipping” fees would be market-based and would reflect the cost of constructing and operating waste management facilities. A commercial system of tipping fees for waste management services would also create incentives for the development of markets for waste materials and/or alternative waste management options. *It is important to emphasize that the introduction of tipping fees is contingent on the existence of a diligently enforced regulatory system for waste management.* In the absence of such a system, the replacement of the pollution charges with tipping fees will do nothing to curtail the indiscriminate waste dumping practices.

172. ***Exclusion of hazardous air and water pollutants from the charge system.*** Toxic substances such as heavy metals, phenols, etc. should be strictly regulated through permits based on technology considerations and regularly monitored. Any accidental releases of such pollutants are likely to cause significant damage to human health and the environment and should be prosecuted through a full range of enforcement responses and liability provisions. Pollution charges for hazardous pollutants play virtually no incentive role that would complement command-and-control regulation and, due to the large number of such pollutants, overly complicate the administration of the system.

173. ***Elimination of charges for air pollution from mobile sources.*** The use of a pollution charge on mobile source in some NIS (e.g., in Ukraine) is somewhat irrational. It is selectively applied to enterprises

but not to private car-owners and is administratively inefficient. Such pollution charges should be replaced by a product charge on fuel.

174. **Targeted use of pollution charges.** The determination of pollutants that would continue to be charged should be guided by an analysis of main environmental problems. In order to have an incentive impact, pollution charges must be targeted at a few key pollutants (that represent priorities of the government's environmental management program) that are discharged mainly by a number of big stationary point sources. For example, a sulfur dioxide pollution problem, when the major polluters are power plants and a few industrial facilities, can be effectively addressed by a pollution charge. If major contributors to the problems are numerous small sources, pollution charges are not a good policy tool.

175. Although there is a strong consensus in the NIS that the number of pollutants subject to charges should be reduced, there may also be political resistance to this change because of the effect on revenues coupled with difficulties in obtaining parliamentary support for higher charge rates to compensate for the loss of revenue. The process of reducing the charge base should be tied together with the revision of charge rates.

176. In principle, **charge rates need to be increased to a level that would provide significant incentives to reduce pollution.** Environmental agencies should undertake an analysis to determine typical charge burdens and pollution abatement costs for enterprises by sector and size and estimate the degree to which the charge rates can be increased (at the same time as the number of pollutants subject to charge is drastically reduced), so as to enhance their incentive impact while maintaining the charges' economic feasibility and political acceptability. The economic feasibility means that polluters (particularly in the public sector) should have access to financial sources to reduce their emissions in response to the charge. If this condition is not met (as in the case of cash-stripped municipal wastewater utilities), some interim solutions such as a planned gradual increase of charge rates along with management improvements in the sector. However, *the discretionary powers of regional and local environmental agencies implementing the charges should be very limited.* Any exemptions and reductions that may be used should be transparent to all and applied in an identical and foreseeable manner by all environmental agencies in the country.

177. The incentive impact of the reformed system of pollution charges would need to be assessed after several years of operation to determine the need for further improvements.

4.3.3 Improving Collection of Pollution Charges

178. An effort to **increase the collection rates** will also enhance the overall credibility of the pollution charge system. Without enforcement, pollution charges, as well as other economic instruments become meaningless.

179. Most NIS have a number of enforcement tools in their legal arsenal for the collection of debt. In some cases, these instruments represent stronger authority (in terms of administrative powers) than that possessed by many Western countries. They also represent as wide an assortment of legal options as that generally found elsewhere in the international community. However, the weakness of the system is generally found in the lack of application of these legal tools to proper cases. The main reasons are: (1) lack of political will at a higher government level to take tough measures against economically and socially important enterprises; and (2) unfamiliarity among both regulators and judges both with the creditors' remedies (means of debt collection) available to them and with how they are administered in the justice

system. For example, the “monetary” enforcement tools available in the Russia are bank orders (to collect money in bank accounts), bank account freeze, debt restructuring, and bankruptcy²⁵.

180. Attachment of property is another means of satisfying a money debt. In a true attachment scenario, property that is secured by legal process may be sold to satisfy the debt. However, the *power* to attach property or the *power* to de-value property is also a powerful enforcement tool. Even the threat to exercise this power can have salutary effects. The threat may be used as a negotiating tool, but the government administrators should not ever make empty gestures. If the condition being sought is not implemented, the government should not hesitate to impose the sanction.

181. The enforcement tools of choice for “attaching” property are the following:

- Attachment of vehicles, equipment, raw materials, buildings, etc.
- Temporary suspension or revocation of an environmental permit.

182. Criminal prosecution may also be used, as a tool of last resort. The wrong behavior that is the subject of this sanction is *more* than the mere owing of money. It contemplates the *evasion* of the payment of money owed and/or the act of *fraud* in so doing.

4.3.4 Product Charges

183. Only few experiments have been made with other types of economic instruments for environmental protection in the NIS besides pollution charges. In 1999, Armenia introduced product charges on a large number of environmentally harmful products (oil products, car batteries, lead containing products, detergents, etc.), ranging from 0.5% to 3% of the market price. In Georgia, there is a tax differentiation on fuel based on the sulfur content. Some NIS (e.g., Georgia, Kazakhstan, Turkmenistan) have introduced tax differentiation for leaded and unleaded gasoline in favor of the latter. However, the rates of the environmental product charges and tax differentiation are still too low to affect the pattern of consumption. Various NIS have also made attempts to introduce taxes on certain specific waste products. These were often unsuccessful due to resistance by industry. A charge on plastic bottles in Georgia and a set of charges on packaging waste in Ukraine were repealed even before entering into effect²⁶.

184. A product charge on fuels has a clear revenue-raising advantage over the current system of pollution charges. First, all users of fuels would be subject to the product charge, so it would be fair from the equity standpoint. Even a very modest product charge rate would generate revenues much larger than those currently collected through pollution charges. Finally, the product charge would be easier to administer since it would be collected from fuel distributors and passed through to consumers as a fuel surcharge. One notable example is Moldova, where a product charge of 1% of the customs price for leaded gasoline and diesel fuel, and of 0.5% for unleaded gasoline is producing substantial revenues for the environmental funds, far exceeding the revenues collected from pollution charges.

185. Product charges are effective instruments to control mobile source air pollution (fuel charges and taxes) and non-point source water pollution (charges on pesticides and fertilizers), but in most cases just as part of a policy package with command-and-control instruments.

²⁵ *Streamlining the Use of Economic Instruments of Environmental Policy in the Rostov Oblast, Russia*. Final Project Report, CCNM/ENV/EAP(2002)1, OECD, Paris, 2002.

²⁶ *Survey on the Use of Economic Instruments for Pollution Control and Natural Resource Management in the NIS: Preliminary Conclusions and Recommendations*, EAP Task Force Secretariat, CCNM/ENV/EAP(2000)85, OECD, Paris, 2000.

4.4 Environmental Liability as a Compliance Incentive

186. Liability rules serve a dual purpose in environmental management. First, in the event of an accidental release of hazardous pollutants into the air, water, or soil, liability rules elaborate the polluter's responsibilities for compensating victims (assessing damages to third parties), cleaning up the release, and compensating the state as trustee for the environment (assessing damages to natural resources). Second, *liability rules may encourage facilities to invest in pollution control and prevention, even if not required by the regulation*. In that capacity, liability acts as a compliance incentive.

187. Although the concept of environmental liability has been included in all framework environmental laws in the NIS, the practice is still based on the old Soviet system of so-called "compensation for damages" (CFD). CFD suits are brought by environmental authorities on behalf of the state, while personal and property damage suits are not covered by this system. In fact, for air and water pollution, it is nothing but an additional non-compliance charge for violations of discharge limits. The rationale for CFD is that violations of short-interval concentration standards result in damages to human health and the environment even if the facility complies with annual loading limits.

188. CFD suits have been used very seldom in recent years. One reason is that most existing in the NIS state-approved methodologies for environmental damage assessment (based on standardized costs or categories of risk) date back to the Soviet era, are speculative and inaccurate, and would result in very small amounts of monetary compensation. New methodologies have since been developed (e.g., in Ukraine and Georgia), but they are also complex and difficult to present to the courts that handle such issues.

Problems with Environmental Damage Lawsuits in Uzbekistan

In 2001, the Fergana Oil Refinery admitted to an accidental release of oil products into the environment. The regional environmental agency assessed the damage at about \$580,000 and filed a suit in a regional court, since the refinery refused to pay the compensation voluntarily. The regional court established the fact of the damage and ruled in favor of the regulator, awarding the sought amount of damages. However, the higher court overturned the regional court's decision and reduced the amount of compensation to only a fraction of the original amount. Following that, the Prosecutor's office blocked an appeal by the environmental agency on the grounds that the damage was assessed based on a methodology with an ambiguous legal status.

Source: *T. Tilliayev*, State Committee for Environmental Protection of Uzbekistan, personal communication, 2002

189. Russia was the first country in the region to have introduced the system of mandatory environmental insurance for hazardous industrial facilities (similar laws are being prepared in Kazakhstan, Kyrgyz Republic, and Moldova). The first experience shows that so far the system has served to extract additional money from industry for the benefit of influential insurance companies. The vast majority of insurance companies are unable to compensate potential damages. One reason for this is the inadequate assessment of insurance companies' assets and financial strength by the Ministry of Finance prior to issuing them a license to offer environmental insurance. The other is artificially low insurance premiums caused by the competition among different insurance companies. The insurance companies generally do not anticipate that they will be liable for any environmental damages (because of the weakness of the liability system) and view the premiums as pure income.

Environmental Insurance Provisions in Russia

The Federal Law No. 116/1997 “On the Safety of Hazardous Industrial Facilities” (Art. 15) and the implementing guidelines of the Ministry of Finance of March 31, 1998 *mandate* environmental insurance for “hazardous industrial facilities” (defined as those generating, using, treating, storing, transporting, or disposing of hazardous substances or wastes). The law requires a minimum amount of 1 million rubles of insurance for facilities handling less than a specified amount of hazardous substances, and 7 million rubles for those that exceed that amount. Only insurance companies approved by the Ministry of Finance are eligible to insure environmental risks. The type of coverage required by the law is for liability to third parties, including physical and juridical persons and the state. Only “accidents” are considered insurable events (defined as “uncontrolled explosions and/or discharges of hazardous substances” into any medium). Damage compensation payments must be approved by the court. The amount of insurance payment is determined by the insurer “based on the document of technical investigation of causes of the accident, court decisions and other evidence of the size of the damage.”

Source: *Streamlining the Use of Economic Instruments of Environmental Policy in the Rostov Oblast, Russia*, Final Project Report, EAP Task Force Secretariat, CCNM/ENV/EAP(2002)1, OECD, Paris, 2002.

190. In the Russian system, there is a discrepancy between the term of an operating license for hazardous facilities (3 years) and the term of insurance coverage (1 year) required to obtain such a license. As a result, many facilities do not renew the insurance coverage when it expires until they have to renew the operating license. In addition, there are semi-legitimate kickbacks (as a percentage of the premium) to environmental authorities “for environmental protection measures” in exchange for official promotion of one or another insurance company among the regulated community.

191. It should be underscored that the core reason for the present dysfunction of the environmental insurance system is the lack of damage compensation claims that would trigger, in turn, the real need for insurance coverage and encourage companies to take preventive measures against environmental accidents. If courts upheld damage suits, hazardous facilities would be incentivized to buy reliable insurance to protect them against their exposure to liability. Insurance companies would then be stimulated to set premium rates so as to accumulate a sufficient reserve, calculated by insurance underwriters, to cover anticipated claims by policyholders having legitimate insurance contracts, rather than share premiums with the government, as is now the practice. In other countries where insurance is integral to the system of environmental protection, the enforcement of liability by administrative and judicial means drives insurance industry viability.

192. The NIS should move away from the current CFD concept where the government seeks damages on behalf of society. This is appropriate in major cases of damage to natural resources where there is an important need for environmental remediation. For personal and property damage, however, individuals should be encouraged to assert their rights through liability laws. This is particularly important in view of the growing private ownership in the NIS. ***It is necessary to develop new damage assessment regulations to implement damage assessment based on actual costs of a selected remedy.***

193. Russia has already made the first step in this direction. The old Russian Law on Environmental Protection (1991) provided that damages may be based on actual costs but *only* in the absence of a relevant methodology. The new Law on Environmental Protection (2002) reversed these priorities. It specifically states (Article 78) that damage assessment shall be made “based on actual costs for restoring the environment ... as well as according to environmental restoration and rehabilitation plans [and] in their absence, according to standardized costs and methodologies...”²⁷ Thus, the Russian federal law has moved from a passive allowance of damage assessment based on actual costs to its endorsement as the principal

²⁷ *Russian Federation Federal Law on Environmental Protection* No. 7-FZ, 10.01.2002.

method of damage assessment. However, an implementing regulation on environmental damage assessment is needed to make the rule operational.

194. If information exists about possible remedies to restore or rehabilitate the damaged environment, the compensation should, in principle, be assessed based on estimated costs of implementing a selected remedy. The selection should be made by the government or a third-party plaintiff and can be challenged in court. It should, however be based on pre-determined criteria: short- and long-term effectiveness of reducing the risk to human health and the environment, compliance with applicable standards, implementability, cost-effectiveness, acceptability to government authorities and the community, etc. Actual costs should be estimated by professional engineers who need to be given incentives to offer their professional services (e.g., a percentage of the damages awarded). Only if there is no known remedy for the actual restoration and rehabilitation of the environment (i.e., the damage is irreversible), the compensation may be assessed based on a standardized methodology.

195. The collection of damages, even if awarded, presents the same difficulties of collection as do pollution charges. In these circumstances, the enforcement agency may ask the court to compel the enterprise to undertake certain abatement measures at its own expense and in line with a court-approved cleanup plan.

196. It should be born in mind that environmental liability and insurance systems are very complex and, in industrialized countries, are based on a mature judiciary system, strong legal foundation of private rights, and well-developed insurance market. However, there is no alternative in the NIS to moving ahead with reforms in this area, since the existing surrogate systems weaken enforcement and create opportunities for corruption.

4.5 Compliance Promotion Instruments

197. Compliance promotion is an activity that encourages voluntary compliance and should be an indispensable part of an enforcement strategy. The main approaches to compliance promotion include:

- information assistance to the regulated community,
- building public support for compliance through information-based instruments,
- promotion of cleaner production and environmental management in enterprises,
- voluntary programs and agreements, and
- financial assistance for compliance.

198. There is only a very limited number of compliance promotion activities in the NIS, which are undertaken with varying frequency and effectiveness. They are usually carried out outside environmental inspectorates, in the form of general information provision by environmental authorities. Enforcement authorities have not been active in encouraging pollution prevention and environmental management at enterprises (although there are isolated cases of donor assistance in this area), while industrialists are often unaware of such preventive strategies and feel they have nothing to gain from them, given weak enforcement and poor market conditions. Information-based instruments such as polluter/pollutant inventories and eco-labeling that could help put public pressure on enterprises and move them toward compliance are not used.

199. In 1999 in Kazakhstan, the Ministry of Natural Resources and Environment introduced a framework for voluntary agreements between industry, the Ministry, and regional administrations (akimats). The agreements were designed to have signatory companies benefit from simplified inspection procedures in exchange for full compliance with pollution discharge limits and regulatory requirements for

self-monitoring and reporting, as well as establishment of certain internal environmental management procedures. However, very few such agreements have been signed and even fewer implemented. For the most part, industry has rejected the new provisions and successfully challenged their legality, which has led the government to abandon the initiative.

4.5.1 Information Assistance to the Regulated Community

200. The information deficit is one of the most serious failures of the regulatory systems in the NIS. Overcoming this problem will be crucial for the successful implementation of legal requirements. Only when the regulated community possesses sufficient and understandable information on the regulatory regime which it has to comply with will it be in a position to do so.

201. Compliance assistance aims to help the regulated community to understand and meet their environmental obligations. Compliance assistance may include activities or tools related to specific regulations and activities that address compliance issues or needs across particular business sector (or in a specific region). Compliance assistance may be provided by organizing meetings and seminars to discuss existing (particularly new) and forthcoming regulatory requirements and compliance problems and opportunities, carrying out compliance control activities by inspectors, establishing information centers/clearinghouses, or through more comprehensive compliance assistance programs.

202. One of the positive examples of cooperation between the Ministry of Environment and industry has been reported in Kazakhstan, where several high-profile seminars have been conducted with key enterprises in the oil and metallurgy sectors to discuss compliance problems and mutually acceptable solutions.²⁸

4.5.2 Information-Based Instruments

203. One of the most basic and effective incentive tools for improving environmental performance is information itself. Efforts to make information about facilities and products available to the public, especially consumers, can lead to greater accountability and voluntary improvement in performance on the part of industry. To draw conclusions about the environmental performance of a particular company, a consumer might want to have information about its pollution discharges, hazardous waste generation, energy sources, regulatory compliance record, environmental management practices, etc. Information programs can make some, or all, of these details available to the public.

204. One of the more advanced information-based environmental policy instruments adopted in several OECD countries is **Pollutant Release and Transfer Registers (PRTRs)**. They are integrated information collection and dissemination systems consisting of data on the sources and amounts of individual pollutants released to each environmental medium or transferred in waste. This information is publicly available through regular reports. The following main benefits of pollutant/polluter inventories should be emphasized:

- Properly designed pollution inventories can provide additional incentives for enterprises to take voluntary action aimed at improvement of environmental performance as enterprises collect information that helps them to identify opportunities to reduce resource waste and improve their efficiency.

²⁸ *Current State and Prospects for Environmental Compliance Assistance*, presentation by G. Edilbaeva, Eurasian Industrial Association, 4th NISECEN Annual Meeting, Almaty, Kazakhstan, 8 October 2002.

- Information provided to the public helps raise environmental awareness, enhance public participation in environmental decision-making, and increase third party pressure on enterprises in terms of environmental performance.
- Information collected for PRTRs or similar inventories can be used by government agencies to monitor progress toward environmental targets and to identify pollution reduction priorities.

205. The UNECE is currently coordinating the process for the development of a binding protocol on PRTRs to the Aarhus Convention. The protocol is expected to be signed at the “Environment for Europe” Ministerial Conference in Kiev in May 2003.

206. Other schemes may be considered, as the one used in Poland and Ukraine, where the *list of worst polluters* has been created, periodically updated, and published. They aim to focus implementation and enforcement efforts on the key polluters, monitor compliance and make information on compliance performance of individual firms known to a broader public. In Poland, the “List of 80” (for 80 worst polluters) first published in the press by environmental authorities in 1990 proved to be a powerful incentive for industrial offenders to come into compliance with environmental requirements. Each polluting enterprise on the list was subject to a negotiated compliance program with time-specific abatement measures and careful monitoring. Since the establishment of the “List of 80,” the total air emissions from those enterprises were reduced by 66%, water effluents by 33%, and waste generation by 71%²⁹.

207. Such simple lists of major polluters may be much less costly and easier to operate than more sophisticated pollutant/polluter inventories. However, in applying these, careful consideration should be given to the clarity, consistency and transparency of the criteria for putting facilities on the list as well as the frequency of its revision. Such lists can serve as an intermediary instrument in the NIS in the transition toward more elaborate schemes as PRTRs.

208. *Performance rating and disclosure (PRD) programs* used in several developing countries (e.g., China, Indonesia, and the Philippines) can also be an effective tool to build community pressure on polluters by evaluating and making public their environmental behavior. Color-rating environmental performance based on a set of simple and transparent criteria reinforces the government’s policy objectives and makes them understandable to the broad public. As with other information-based instruments, political will and data availability (which is linked to self-monitoring) are the main constraints for PRD implementation.

209. *Eco-labeling* schemes are another information instrument that, with proper monitoring and independent certification, can allow consumers to directly influence the conservation of natural resources. There are a number of international eco-certification schemes (for recycling, energy efficiency, sustainable forestry and tourism) that NIS companies may wish to join. Environmental education and public awareness raising are also essential components of most environmental policy packages.

4.5.3 Promotion of Cleaner Production and Environmental Management in Enterprises

210. In considering further activities for promoting compliance, the NIS should strive to implement the Policy Statement on Environmental Management in Enterprises that was adopted by NIS Environment Ministers in 1998. The Policy Statement recognized that there were potentially large benefits, both environmentally and economically, to be achieved from introducing cleaner production methods. The

²⁹ *Polish Experience with Environmental Compliance Promotion Mechanisms*, presentation by W. Sobczyk, Polish Environmental Inspectorate, 4th NISECEN Annual Meeting, Almaty, Kazakhstan, 8 October 2002.

Statement called the governments to develop a policy framework (including enforcement) that would provide appropriate incentives for enterprises to adopt good environmental management practices.

211. Institutions like cleaner production centers and business networks for environmental management can play an important role in supporting environmental management in enterprises (EME). According to the 2002 EAP Task Force survey,³⁰ there are now 20 cleaner production centers in the NIS. This progress has been achieved despite the general disinterest in EME promotion in most NIS governments and the absence of coordinated and focused cleaner production support from donor agencies. Donor assistance has frequently been focused on the implementation of isolated demonstration projects, with very little resources allocated for the dissemination of the achieved results. Many existing centers were established in the NIS at the grass-roots level by independent experts, who managed to secure small, project-specific donor and business financing to carry out their activities.

212. The Russian-Norwegian Cleaner Production Center is a notable exception. For already eight years, the Center has been working directly with enterprise managers, sometimes with support from regional authorities, to provide training in cleaner production (with a focus on low-cost, resource-saving solutions), environmental aspects of business planning, and environmental management systems (EMS)³¹.

213. So far there are only 16 companies throughout the NIS who have acquired ISO 14001 EMS certification, most of them (12) located in the Russia³². The economic framework conditions for the development of environmental management in enterprises (investment climate, market competition, resource pricing, etc.) in the NIS remain broadly unfavorable. The weakness of enforcement systems, paired with ineffective economic instruments and virtual absence of compliance assistance, further discourage EME. Low and no-cost EME opportunities remain available, but companies most often do not exploit them as they lack incentives and expertise to identify and implement such measures.

214. NIS environmental agencies should engage in the following activities to encourage enterprises to improve their environmental management:

- Develop a formal *environmental compliance policy* that would encourage the establishment of Environmental Management Systems (EMS) and cleaner production investments in exchange for some degree of regulatory forbearance and targeted financial and technical support.
- Create government programs that would provide enterprises with *technical assistance* with environmental audits, preparation for EMS certification, and promote pilot cleaner production projects.

215. In the longer term, as the enforcement climate improves, NIS environmental agencies may wish to explore the option of concluding *voluntary agreements with industry*. Such agreements usually commit industry to meeting environmental targets, but leave the means of achieving them up to the industries concerned. This enables them to consider a wider range of options than might be addressed within ordinary regulatory requirements and enable the development of more imaginative and cost-effective solutions. Voluntary agreements should also include strict verification procedures and provisions for punishing enterprises for violating the terms of the agreement.

³⁰ The survey was carried out in May/June 2002. More than 40 cleaner production experts and officials throughout the NIS were contacted.

³¹ Presentation by M. Malahova, Manager of the Russian-Norwegian Cleaner Production Center, 4th NISECEN Annual Meeting, Almaty, Kazakhstan, 8 October 2002.

³² International Organization for Standardization (ISO), 11th Cycle, 2002.

4.5.4 Finance-based Compliance Assistance

216. Public subsidies for environmental investments are another compliance promotion tool that governments usually consider when trying to stimulate environmental improvements. In many NIS (in Russia, until very recently), there is a system under which enterprises can keep a part of their pollution charges in exchange for internal environmental investments (eligible under rather vague criteria). The total amount of money available for offsets is usually planned at the beginning of the year, and is then distributed according to some investment “priorities” that have been established. To receive credit, enterprises have to prove that they have already spent their own money on an eligible project and have achieved “some” results. While the design is creative, the offsets in practice are often granted to those enterprises which do not pay charges anyway, and thereby defeat the incentive contemplated by the pollution charge program itself.

217. Relying on subsidies to achieve environmental improvements is, in itself, an indicator of weak enforcement. However, during the transition to a market economy, due to a number of policy and market failures, subsidies could play an important role in supporting the implementation of environmental policy, thus encouraging compliance with environmental requirements, particularly in small and medium-sized enterprises.

218. In order to avoid abuse, public support should be provided only when and where it is needed, mostly for priority environmental investments. Public support from the general budget or earmarked funds should aim to mobilize additional resources by requiring enterprises to spend money from their own funds. Particular instruments could include, among others, target grants, soft loans, loan guarantees, and bank interest subsidies. Such incentives, or any others that may be devised, should be limited to those enterprises that demonstrate their good faith by paying their environmental charges and taxes. In addition, subsidies should be disbursed in a competitive and transparent manner and should be directed to those projects that are defined as priorities by the government and offer the most cost-effective solutions (that is, achieve goals at minimum costs)³³.

³³ See also “Good Practices of Public Environmental Expenditure Management in Transition Economies,” EAP Task Force, OECD, forthcoming, 2003.

5. BENCHMARKS FOR REFORMS OF POLICY INSTRUMENTS IN THE NIS

219. There is an ongoing discussion in the NIS about the *benchmarks* of further reforms of environmental policy instruments. Such benchmarks are needed to plan the reforms of such basic policy instruments as standards, permitting procedures, and monitoring regimens. There are several developed systems of environmental management that can serve as models for NIS reforms – those of the European Union, the United States, and several other industrialized nations. However, several economic, political, and other factors identified in Section 5.1 make the EU environmental legislation an attractive benchmark for the NIS. Section 5.2 argues that for those NIS with an interest to use EU environmental Directives as benchmarks, partial and gradual convergence of national environmental regulatory frameworks rather than full legal approximation with EU norms would be the most practical approach. Section 5.3 presents some preliminary thoughts on the key elements of the EU environmental *acquis* that could become short-term targets for NIS reforms of policy instruments. Finally, Section 5.4 describes the main types of issues that ought to be considered in a possible convergence process.

5.1 Economic and Political Pressure for Convergence with EU Environmental Norms

220. The enlargement of the European Union eastward provides a powerful incentive for the NIS to focus the environmental regulatory reform on meeting basic EU requirements and moving their national environmental legislation closer to EU norms. While most NIS do not identify membership in the European Union as a central political and economic goal, it is recognized that in the future, the EU-NIS relationship will increase in importance.

221. Convergence with the EU environmental legislation promises the NIS significant benefits in terms of *increased trade and investment*. The EU is already the most important trade and investment partner of most NIS, and the introduction of sound environmental requirements consistent with the European ones is likely to further strengthen these trade ties and help to attract more EU investors into the region.

222. An enlarged Union will share a border with Russia, Ukraine, Belarus, and Moldova. The resulting *transboundary environmental issues* will require calibrating relevant elements of the regulatory framework in these countries to be able to adequately address such issues together with the EU.

223. There is also substantial *political pressure* on most NIS governments to incorporate principal EU environmental requirements in their national legislation. Partnership and Co-operation Agreements (PCAs) and Interim Agreements have been signed over the last ten years with all the NIS except Tajikistan and Turkmenistan. Each PCA serves as a basis for political and economic relations between the EU and the partner country, covering trade in goods and services, political dialogue, and investment-related issues, and promoting environmental protection and sustainable development as a condition for bilateral cooperation.

224. The EU views these Agreements as a binding commitment on the part of the NIS to make their environmental regulations consistent with the EU policies and requirements. For example, the Russia-EU PCA of 1997 states (Article 55) that “Russia shall endeavor to ensure that its legislation will be gradually made compatible with that of the Community. The approximation of laws shall extend to the following areas, in particular ... the environment.”³⁴ The Agreements with the EU have been reflected in national policies of several NIS. For instance, the “Strategy of Ukraine’s Integration to the European Union” (1998)

³⁴ See the Russia-EU PCA at http://www.europa.eu.int/comm/external_relations/ceeca/pca/pca_russia.pdf.

stipulates that “reforming the legal system and its gradual convergence with the requirements of the European standards... covers private, customs, labor, financial, tax, intellectual property and labor protection law, as well as legislation that deals with health care, *environment*, consumer rights, technical standards, transport and other industries as defined in the PCA.”³⁵

225. These drivers primarily apply to the former Soviet countries of Eastern Europe and the Caucasus, but to Central Asian countries the EU environmental *acquis* is also an attractive benchmark for regulatory reforms. Its distinctive advantage is that it lays out key principles and requirements of sound environmental management while leaving institutional flexibility for their implementation in each country. This flexibility would be important for the diverse countries of the region when determining how to integrate EU norms into their particular legal and institutional frameworks. Many multilateral environmental agreements to which the NIS are parties also stipulate those same principles and regulatory systems, so convergence will also help countries comply with such obligations.

5.2 Convergence Versus Approximation: Need for a Strategy

226. Officials in the NIS and even sometimes in Europe often talk about “approximation” when referring to the process of bringing NIS legislation closer to EU norms. Approximation, however, is a term used in the accession context to describe a unique obligation of membership in the EU. It is an obligation of a particular country (e.g., for the ten countries that will join the EU in 2004) to fully align (through transposition) its national laws, regulations, rules and procedures with the entire body of the European Community Law, which consists of over 300 legal acts.

227. The full approximation with the environmental *acquis* is neither appropriate nor needed in the NIS. First of all, the NIS do not have the financial resources that would be required to comply with all existing EU requirements (see the discussion of cost issues in Section 5.4). The limited institutional capabilities can accommodate only a gradual implementation of key EU regulatory principles and standards. The recently promulgated framework environmental laws in the NIS would allow, with few exceptions, the incorporation of many EU norms into the secondary legislation, making direct transposition of EU Directives into national laws (in the way it is being done in the EU accession countries) unnecessary. Finally, the NIS have no short-term prospects of joining the EU and do not need to be concerned with complete conformance with the EU legislation.

228. This is why *convergence* is the concept that most adequately reflects the approach to use EU norms as benchmarks in reforms of environmental policy instruments³⁶. Convergence implies that the main principles and features of one legal system should be integrated, to a feasible extent, into the other legal system, taking into account the specificity of the “receiving” system and without necessarily adopting exactly the same requirements in detail.

229. The western NIS (Russia, Ukraine, Moldova, and Georgia) have already begun, with the help of foreign donors, to create programs for legislative convergence and to verify conformance of their laws with relevant EU Directives through legal gap analyses and other legislative evaluations. However, at the moment neither NIS governments nor the donors have a clear sense of priorities for the convergence efforts, which are hardly coordinated, leading to a waste of time and much-needed technical assistance funds. The main need, therefore, lies in joint efforts by the EU and the countries of the region to develop a *strategy* for *gradually* incorporating the principal EU regulatory requirements into the secondary

³⁵ See the Strategy on the Ukrainian Ministry for Foreign Affairs’ website at <http://www.mfa.gov.ua/eng/diplomacy/?ua-eu>

³⁶ The term “harmonization” is also sometimes used in this context, but it generally sets an expectation of closer alignment of specific pieces of legislation than does convergence.

environmental legislation (i.e., implementing regulations) of the NIS, building at the same time institutional capacity to implement such reforms.

5.3 Ideas for Short-Term Priority Benchmarks

230. As already pointed out in Section 2.3, the short-term priority for the NIS in their reform of environmental policy instruments should be an integrated reform of all fundamental regulatory policy instruments (standards, permitting, monitoring, and enforcement). Specific pieces of the EU environmental acquis contain useful concepts, standards, or processes that can be effectively applied already in the near future to improve these instruments³⁷. This section gives a very brief overview of the principal EU Directives that offer important references for reforming the basic regulatory framework in the NIS³⁸.

231. The *EU framework Directives* in the areas of air protection, water protection and waste management (and their “daughter” Directives) offer valuable concepts and benchmarks, particularly with respect to air and water quality objectives and standards and performance standards for waste management, as well as procedures for their implementation. In addition, they provide useful guidance on monitoring and sampling procedures.

232. The *Air Quality Framework Directive* (96/62/EC) provides for the establishment of ambient air quality objectives and standards, the assessment of air quality, the provision of information to the public and the development and implementation of air quality programs. Ambient standards and alert values are established for various air pollutants through daughter directives and may be adapted and incorporated into NIS regulations. Some other specific requirements contained in the Air Quality Framework Directive that represent important reform guidance to the NIS include:

- Assessment of ambient air quality against standards and alert thresholds taking into account the size of populations and ecosystems exposed to air pollution;
- Direction on location and number of sampling points and reference methods of measurement;
- Requirement of precautionary measures to be taken when threshold values are exceeded;
- Requirement of preparing plans for areas with particular poor air quality and determining technically and financially realistic approaches to reducing emissions to prescribed standards; and
- Requirement of making adequate information on ambient air quality available to the public.

233. In addition, there are a number of product-related Directives addressing air pollution that could be of value to the NIS. For example, the *Directive on Fuel Quality* (98/70/EC) could be an important convergence target, as air pollution from transport is an increasing problem in most NIS. This Directive sets out technical specifications for petrol and diesel fuels that influence the level of atmospheric emissions from vehicles. Particularly crucial from the point of view of health and environmental impacts are the mandated concentrations of lead, sulfur, aromatic organic compounds, and benzene.

234. The recent *Water Framework Directive* (2000/60/EC) lays out the comprehensive EU water policy. It offers a range of essential reform benchmarks for the NIS, although full harmonization with it would be unrealistic for these countries in the short term because of its demanding institutional

³⁷ A more detailed overview of possible convergence targets is given in a study supported by the European Commission’s DG Environment “*Strategic Guidance for Convergence of NIS Environmental Legislation with EU Directives*,” by ERM Ltd., December 2002.

³⁸ Since EIA, as mentioned earlier, is not discussed in detail in this report, this section does not consider the EIA Directive (85/337/EEC, as amended by 97/11/EC). Nevertheless, it is important to note that this Directive is a very useful reference for the NIS in defining the EIA scope and implementation procedures, including public participation.

requirements. Full implementation of the Water Framework Directive is expected to pose substantial challenges even in the EU member states.

235. One of the most important features of the Water Framework Directive is that it requires water resources to be managed on the basis of river basins rather than administrative or political boundaries. For each river basin, a management plan has to be developed aimed at achieving particular water quality objectives. Common methods of sampling and analysis are also required in order to integrate the information support for water management. In addition, the Directive requires adequate pricing of water resources to ensure their sustainable use.

236. Significantly for the NIS, this Directive provides a model approach that ties together all the principal elements of effective water quality management, many of which are currently missing (see Section 3.2.3). Some NIS (including Russia) have some, albeit imperfect, elements of river basin management which could provide a basis for gradual development of this approach.

237. Decision 2455/2001/EC complementing the Water Framework Directive established the list of priority water pollutants regulated in the EU. The European Commission is soon expected to propose community-wide water quality standards for these priority substances, primarily through a revision of the norms promulgated in the 1976 Directive on Discharges of Dangerous Substances to Water (76/464/EEC). These standards could already in the short term serve (after appropriate adaptation) as convergence targets for the NIS.

238. The *Waste Framework Directive* (75/442/EEC, as amended by 91/156/EEC) requires the establishment of a management framework that aims at waste prevention, recovery, recycling, and reuse, as well as its use as a source of energy. Where this is technically and economically impossible, the Directive mandates that waste be disposed of in a manner that minimizes environmental impacts. Other key concepts promoted by the Waste Framework Directive are the “polluter pays” principle in waste management that ensures that the cost of disposal or treatment of waste is borne by its generator, and the development of waste management plans with various incentives for waste minimization.

239. The Waste Framework Directive is the backbone of the EU waste policy, and its basic principles could be an important component of the convergence strategy for the NIS, even though the costs of building the waste treatment and disposal infrastructure required by the Directive cannot be met by the NIS in the foreseeable future.

240. Convergence with the *Hazardous Waste Directive* (91/689/EEC) would facilitate the development of a comprehensive regulatory system for managing hazardous waste in the NIS, the urgent need for and main elements of are described in Section 3.4. The Directive introduces a precise and uniform definition of hazardous waste, requires registration of hazardous waste generators, transporters, and storage, treatment, and disposal facilities, mandates a tracking and record-keeping procedure and a system of technique-based (design) and performance (e.g., labeling) standards for hazardous waste handling. The Directive reflects the principles of hazardous waste management universally accepted in OECD countries, making it a priority benchmark for the NIS.

241. Section 3.5 of this report discusses in detail the steps the NIS could take in a gradual transition toward integrated permitting consistent with the *Integrated Pollution Prevention and Control (IPPC) Directive* (96/61/EEC). Although integrated permitting is a long-term target for the NIS, there are reforms (primarily procedural improvements) based on the IPPC principles that could significantly streamline the NIS permitting systems already in the near future.

242. The NIS may also consider convergence with the so-called *Seveso Directive* (96/82/EC) that regulates the prevention and control of major industrial accidents. The Seveso Directive applies to large installations using dangerous substances and is complementary to the implementation of the IPPC Directive. It stipulates a system of notification of use of dangerous substances at certain categories of industrial facilities, requires the establishment and approval of major accident prevention policies, safety reports, and emergency preparedness and response plans. In the NIS, where frequent industrial accidents, particularly at old facilities, are a major source of damage to public health and the environment, convergence with this Directive could provide a framework for essential cooperation between competent authorities and industry in averting and remediating the impact of such accidents.

243. Finally, the *EU Recommendation on Environmental Inspection* (2001/331/EC) provides a benchmark for improving the enforcement system in the NIS. It describes minimum criteria for facility inspection, requires the development (and sharing with the regulated community and broader public) of inspection plans, and provides guidance on the procedure of site visits and reporting of noncompliance.

244. In their convergence efforts, NIS governments can draw upon multiple sources of information and experience with respect to these and, in the longer term, other parts of the *acquis*:

- various guidance documents produced by the European Commission, such as the Guide to the Approximation of the European Union Environmental Legislation³⁹ (with a caveat that this guidance is targeting accession countries);
- lessons learned from the approximation process in the accession countries of Central and Eastern Europe, particularly the Baltic States that had the same starting point – the Soviet regulatory and institutional framework and legal culture; and
- lessons learned from convergence projects in individual NIS, as they are designed and implemented.

245. Due to the institutional and other constraints (discussed in more detail in the next section), it will be difficult for NIS governments to take up convergence with all the above mentioned Directives at the same time. The order of convergence would, therefore, depend on the priority environmental problems and respective regulatory needs and vary from country to country. This would affect in particular the preference for convergence with certain medium-specific EU framework Directives, based on a relative priority of air, water, or waste issues. In this context, it is important to transfer experience with convergence across the region, from the countries that engage in certain aspects of convergence to those that do it later. Such sharing of experience will help leverage scarce domestic and donor resources.

5.4 Institutional, Legal, and Financial Issues of Convergence

246. The NIS are likely to face formidable challenges – institutional, legal, and financial – in their efforts of convergence with key elements of the EU environmental legislation. The *institutional constraints* stemming from the widespread lack of interagency coordination (including overlapping responsibilities), shortage of human and technical resources, and poor information management are likely to be a major limiting factor in the regulatory reform process. EU convergence will require increased resources and skills, and sometimes even the creation of new structures, such as river basin agencies for integrated water resources management. A recent study on the institutional capacity required for the

³⁹ See <http://www.europa.eu.int/comm/environment/guide/preface.htm>

implementation of the EU environmental acquis in the accession countries⁴⁰ identified the following principal institutional needs:

- design of planning and general management programs under the key framework Directives for air, water, and waste;
- establishment of an integrated permitting process under the IPPC Directive, including the production of BAT notes and other guidance documents;
- close coordination between permitting, monitoring, and enforcement officials, particularly in terms of information sharing;
- creation of an integrated monitoring system, which requires adequate technical expertise and equipment; and
- development of a stakeholder consultation process, including effective mechanisms for communication with the public.

247. As already noted in Section 2.4 of this report, institutional capacity building in the NIS is likely to be a demanding task and require increased budgets, elaborate operational procedures and guidelines, and intensive training. Extensive legal analysis and drafting, as well as economic analysis that would be part of convergence planning and implementation will require substantial expertise in these areas that is currently not available to NIS environmental agencies. At the same time, the process of convergence itself would facilitate the improvement of interagency cooperation and provide staff of relevant government authorities with on-the-job training in best environmental management practices.

248. The *legal issues* of EU convergence in the NIS are related mostly to inconsistencies within the existing legislation, which have to be resolved before EU elements are incorporated into it. For the most part, recent framework laws on environmental protection, as well as air, water, and waste laws give relevant executive bodies sufficient authority to introduce regulatory changes (new standards, permitting procedures, and monitoring requirements, etc.) at the level of implementing regulations. In some cases, amendments to primary legislation may be needed to introduce management flexibility which is the key regulatory principle of EU environmental legislation (see also Section 3.2.1). Such amendments may take time to enact. On the other hand, in those countries where there is strong political commitment to convergence with the EU, the legal barriers may be less significant.

249. It has been mentioned above that *financial constraints* make full harmonization with the EU environmental acquis unrealistic for the NIS. This is particularly true for those EU Directives that require massive infrastructure investments: the Urban Waste Water Treatment Directive, the Large Combustion Plant (LCP) Directive, and the Landfill Directive, to name the main ones. The costs of Ukraine's harmonization with the LCP Directive have been estimated at about 2 billion euros between 1997 and 2010, or between 245 and 320 million euros annually⁴¹ – an amount of investment the country clearly cannot afford. Therefore, the focus of convergence for the NIS in the short term should be on the elements of EU legislation that contain fundamental regulatory provisions (as the ones described in Section 5.3) and not those that deal with technical requirements for environmental infrastructure.

250. Apart from costs of compliance with new regulatory requirements, the NIS that pursue the road of EU convergence would face very significant administration costs. A World Bank project in Ukraine

⁴⁰ *Administrative Capacity for Implementation and Enforcement of EU Environmental Policy in the 13 Candidate Countries*, Ecotec Research and Consulting, 2002. See: http://www.europa.eu.int/comm/environment/enlarg/administrativecapacity_en.htm

⁴¹ *Costs of Ukraine's Prospective Approximation with Environmental Regulations of the European Union*, Krakow University of Economics, 1999.

roughly estimated the administration costs of full approximation at up to USD 20 million for the development of regulations, up to USD 50 million for staff training and technical capacity improvements, and up to USD 100 million for the upgrade of the monitoring system⁴². Costs of this magnitude can only partly be met through foreign donor assistance and will constitute a huge burden on NIS environmental agencies. This is why each country needs a carefully designed convergence strategy that would allow effective use and leveraging of technical assistance resources and experiences of other countries.

⁴² *Environmental Policy Development and Regulatory Capacity Building in Ukraine*, General Summary Report, World Bank Institutional Development Fund, Grant 28281 UA, Kyiv, 1999.